CURRICULUM VITAE

Silvia Muro

1. Personal Information

1.a. Contact Information

ICREA Research Professor & Group Leader (50% FTA)
Catalan Inst. Research & Advanced Studies (ICREA)
& Inst. Bioengineering of Catalonia (IBEC)
Barcelona (Spain)

Phone: +34 934-020-440
Email: smuro@ibecbarcelona.eu

Adjunct Professor (0% FTA)
Chemical & Biomolecular Engineering Department
University of Maryland College Park
MD, USA

Phone: N/A
Email: muro@umd.edu

1.b. Educational Background

Degrees:

Jul. 1995	B.S. Sciences - Biology, School of Sciences, University of Granada, Spain.
Dec. 1999	Ph.D. Molecular Biology, School of Sciences, University Autonoma of Madrid, Spain.

Training and Fellowship Appointments:

Sep.1995-Dec.1999	Graduate Fellow, Center for Molecular Biology “Severo Ochoa” & Department of Molecular Biology, School of Sciences, University Autonoma of Madrid, Spain.
Jun. 1997	Visiting Fellow, Department of Medical Biochemistry and Danish Center for Human Genome Research, Aarhus University, Denmark.
Jul. 1999	Visiting Fellow, Department of Human Genetics, Royal Victoria Hospital, McGill University, Montreal, Canada.
Jan.2000-Oct.2000	Postdoctoral Fellow, Center for Molecular Biology “Severo Ochoa”, School of Sciences, University Autonoma of Madrid, Spain.
Oct. 2000-Oct.2003	Postdoctoral Fellow, Wistar Institute and Institute for Environmental Medicine, University of Pennsylvania School of Medicine, Philadelphia, PA.

1.c. Employment Background

Oct.2003-Sep.2005	Research Associate, Institute for Environmental Medicine, University of Pennsylvania School of Medicine, Philadelphia, PA.
Sep.2005-Jul.2008	Research Assistant Professor, Department of Pharmacology, University of Pennsylvania School of Medicine, Philadelphia, PA.
Sep.2005-Jul.2008	Adjunct Investigator of the Institute for Environmental Medicine, and Member of the Institute for Translational Medicine and Therapeutics, University of Pennsylvania School of Medicine, Philadelphia, PA.
Jul.2008-Jul.2012	Assistant Professor, joint appointment in the Institute for Bioscience and Biotechnology Research (former U. Maryland Biotechnology Institute) and the Fischell Department of Bioengineering, University of Maryland College Park, MD.
Jul.2008-May2010	Adjunct Professor, Medical Biotechnology Center (MBC) of the U. Maryland Biotechnology Institute, Baltimore, MD; currently Center for Biomedical Engineering and Technology.
Jul.2008-Apr.2021	Affiliate Professor, Biological Sciences Graduate Program, Concentration Area: Molecular and Cellular Biology, University of Maryland College Park, MD.
Jul.2012-Jul 2018	Tenured Associate Professor, joint: Fischell Department of Bioengineering and the Institute for Bioscience and Biotechnology Research, University of Maryland College Park, MD.
Nov.2017-Present	ICREA Research Professor, Catalan Institute for Research and Advanced Studies, Barcelona, Spain.
Nov.2017-Present	Group Leader, Institute for Bioengineering of Catalonia (IBEC), the Barcelona Institute of Science and Technology (BIST), Barcelona, Spain.
Jun.2018-Apr. 2021	Affiliate Associate Professor first, Department of Chemical and Biomolecular Engineering, University of Maryland College Park, MD.

Aug.2018-Apr.2021	Associate Research Professor, Institute for Bioscience and Biotechnology Research, University of Maryland College Park, MD.
Apr. 2021-Jul.2022	Affiliate Professor, Institute for Bioscience and Biotechnology Research, University of Maryland College Park, MD.
Apr. 2021-Present	Adjunct Professor, Department of Chemical and Biomolecular Engineering, University of Maryland College Park, MD.

2. Research & Scholarly Activities

2.a. Contracts and Grants

Summary: Awards where Muro has been the **PI: $5.9 million** (M). Awards in which Muro has been involved (PI, co-PI, co-investigator): **$31.5 M total (Muro share: ~$7.33 M**).

Active Support: Due to a long-term medical condition, I have been under medical leave first and then under a reduced FTA (30% -50%) for the last few years, to enable completion of projects and dissertations, and the publication of papers, but the lab has been closed for almost two years. I am now returning and seeking funds.

(Date format = Month/Day/Year)

Active

IBEC's thematic networks — Iris Batalha (PI), **Muro (Representative)** — 09/01/24 - 12/31/25
Next generation nanomedicine — 25,000€

Under preparation for Jan.2025 submission

"Generacion de conocimiento" Program MICIU-Spain — **Muro (PI)** — 09/01/25 - 08/31/28
BRAINZYME: New isoform-dependent brain-targeting for enzyme therapy — 250,000€

Completed Support:

1-NIH 2R01 HL098416 (renewal of completed R01 HL098416) — **Muro (PI)** — 04/01/17 - 12/31/22
Targeted replacement of defective lysosomal enzymes in the lung and brain — $1,525,656
IBEC (Barcelona, Spain) acted as international partner for the last 6 months of activity.

2-RETOS RTI2018-101034-B-I00 MINECO-Spain — **Muro (PI)** — 10/01/19 - 12/31/22
CROSSTARGET: Development of new translational cross-species tools for therapeutic targeting with organ and subcellular precision. — 205,700€ + 88,250€ trainee

3-Genisphere LLC. SRA — **Muro (PI)** — 04/01/17 - 12/31/21
Characterization of cellular interactions and PK of targeted 3DNA carriers — $181,405

4-BIST Ignite – NANOGABA-Spain — **Muro (PI)** — 03/01/20 - 08/01/21
Assessing how glucocerebrosidase defects alter receptor membrane nanoarchitecture to design improved nanomedicines — 20,000€

5-IBEC Faster Future-Spain — **Muro (PI)** — 10/01/19 - 02/28/21
Brain bridge for Parkinson's — 22.757€

6-SAF2017-91909-EXP MINECO-Spain — **Muro (PI)** — 10/01/18 - 12/31/20
BBB2GATE: Controlling the differential transport of therapeutic cargoes into versus across the BBB — 54.549€

7-IBBR Seed Grant — **Muro (PI)** & Feldman (co-PI) — 09/01/19 - 08/31/20
Multimodular enzymes for targeted treatment of Gaucher's and Parkinson's — $40.000

8-Carlsberg foundation CF16-0233 — Städler (PI)**; Muro, Collaborator** — 05/01/17 – 04/30/20
Synthetic nanobots to overcome physical barriers to enhance therapeutic efficacy — 3,828,670 DKK ($500,000)

9-IBBR Seed Grant — **Muro (PI)** and Andrianov (PI) — 10/01/15 - 30/06/19
Development of nanoparticulate delivery system for anti-RAS protein therapeutics — $462,400

10-UM Ventures Seed Grant — **Muro (PI)** — 06/01/18 - 06/30/19
Peptides for transport of therapeutics and their carriers in mouse models and humans — $15,000

11-TEDCO MII — **Muro (PI)** — 06/01/17 - 05/03/18
Targeted fusion enzymes for effective treatment of lysosomal disorders — $115,000

12-NSF CBET 1402756 — **Muro (PI)** — 06/01/14 - 05/31/17

Engineering a DNA-based nanodevice to enable cytosolic transport of enzymes $350,000

13-NIH R01 HL098416 **Muro (PI)** 04/01/10 - 12/31/16
Targeted replacement of defective lysosomal enzymes in the lung and brain $1,725,000

14-NIH NCATS LDN-U54NS065768 **Muro (PI)** and Solomon (Fellow) 08/01/15 - 07/31/16
Evaluation of transcytosis mechanism in lysosomal diseases brain $50,000

15-OCT-UMD Seed Grant **Muro (PI)** 07/01/14 - 06/30/15
Oral delivery of therapeutic enzymes $20,000

16-NIH TRND – SAIC 11X178 **Muro (PI)** 09/01/11 – 08/31/13
Development of strategies for treatment of Alzheimer's disease and Niemann-pick disease $97,997

17-AHA 09BGI2450014 **Muro (PI)** 07/01/09 - 06/30/11
Endothelial clearance of fibrin by non-classical endocytic transport. $154,000

18-Minta Martin Foundation **Muro (PI)** 07/01/09 - 06/30/10
Transport of substances by the vascular endothelium in microgravity $70,000

19-NIH-UPenn Pilot P30 DK47757 **Muro (PI** Pilot**)**; Wilson (PI P30) 09/01/06 - 08/31/08
Targeted delivery of lysosomal enzyme therapeutics by multivalent nanocarriers. $67,000

20-NIH R21 HL085533 **Muro (PI)** 07/01/06 - 06/30/08
Targeted enzyme delivery systems for treatment of orphan Niemann-Pick disease $375,000

21-AHA SDG 0435481N **Muro (PI)** 07/01/04 - 06/30/08
Endothelium targeted enzyme replacement therapy for lysosomal storage disorders $280,000

22-NIH R01 HL091950A1 Muzykantov (PI); **Muro, Co-Investigator** 07/01/09 - 06/30/14
Targeted delivery of thrombomodulin in lung diseases $1,968,750

23-NIH R01 EB006818A2 Eckmann (PI); **Muro, Co-Investigator** 07/01/08 - 06/30/13
Targeted microcarrier design and optimization. *(Relinquished due to relocation to UMD)* $1,875,000

24-NIH R01 HL087036A2 Muzykantov (PI); **Muro, Co-Investigator** 04/01/08 - 03/31/13
Targeting carriers with controlled geometry to endothelium *(Relinquished due to relocation to UMD)* $1,968,750

25-NIH R01 EB007279 Vinogradov (PI); **Muro, Co-Investigator** 04/01/07 - 03/31/12
Oxygen microscopy by two photon excited phosphorescence *(Relinquished due to relocation to UMD)* $1,500,000

26-NIH P01 HL079063 Fisher (PI), **Muro, Co-Investigator** 07/11/05 - 04/30/10
Reactive oxygen species and antioxidants in acute lung injury $12,146,546 ($1,768,703 project 4)

27-NIH R01 HL073940A1 Muzykantov (PI); **Muro, Co-Investigator** 04/04/04 - 03/31/08
Augmentation of antioxidant defenses by immunotargeting $1,500,000

28-NIH R01 HL078785 Muzykantov (PI); **Muro, Co-Investigator** 08/01/04 - 06/30/08
Augmentation of antioxidant defenses by immunotargeting *(Relinquished in favor of P01 HL079063)* $1,500,000

29-DOD DAMD17-02-1-0197 Muzykantov (PI); **Muro, Co-PI** 04/01/02 - 03/31/07
Targeting of drugs to ICAM for treatment of acute lung injury $1,283,287

30-NIH R01 HL71175 Muzykantov (PI); **Muro, Co-Investigator** 07/01/02 - 06/30/06
Targeting of drugs to ICAM-1 $1,344,600

Summary of products*:* (i) 107 publications (books, chapters, articles, newsletters, editorials) + 3 under preparation, of which 16 have been highlighted in journal covers, editorials, and/or press releases; (ii) 149 talks (95 invited and 54 contributed) and 156 poster presentations, of which 26 received awards; and (iii) 11 invention disclosures, 10 patent (or patent family) applications, 6 patents issued, of which one received 2 awards, one is out licensed, and one is optioned.

Citations: 7438 (1870 between 2021-2024 = 467/year); h-index=47; i10-index=93 (Google Scholar).

2.b. Media (see also section 2.j.)

1-Muro interview in the documentary "Nanomedicine revolution", in "A Curious World" series, CuriosityStream, Pixeldust Studios. (2016)

2-Muro interview in the podcast “A new route to access the brain for Parkinson’s treatment” in “Latengopequeña”, which discusses weekly new advances in science and technologies. (http://latengopequena.com/ep48-encuentra-la-llave-magica-que-abre-la-barrera-protectora-del-cerebro-para-tratar-enfermedades-como-el-parkinson-con-silvia-muro-profesora-de-investigacion-icrea-y-lider-de-grupo-en-ibec/), (2019)

2.c. Articles in Referred Journals

Original research and review articles: (All peer reviewed; *Marks corresponding authors)

1. Hoenicka J, Rodríguez-Pombo P, Pérez-Cerdá C, **Muro S**, Richard E, Ugarte M*. (1998) New frequent mutation in the PCCB gene in Spanish propionic acidemia patients. Hum Mutat, Suppl 1:234-236.
2. Pérez-Cerdá C, Merinero B, Martí M, Cabrera JC, Peña L, García MJ, Gangoiti J, Sanz P, Rodríguez-Pombo P, Hoenicka J, Richard E, **Muro S**, Ugarte M*. (1998) An unusual late onset case of propionic acidemia: biochemical investigations, neuroradiological findings and mutation analysis. Eur J Pediatr, 157:50-52.
3. Rodríguez-Pombo P, Hoenicka J, **Muro S**, Pérez B, Pérez-Cerdá C, Richard E, Desviat LR, Ugarte M*. (1998) Human propionyl-CoA carboxylase β subunit gene: exon-intron definition and mutation spectrum in Spanish and Latin American propionic acidemia patients. Am J Hum Genet, 63: 360-369.
4. **Muro S**, Rodríguez-Pombo P, Pérez B, Pérez-Cerdá C, Desviat LR, Sperl W, Skladal D, Sass JO, Ugarte M*. (1999) Identification of novel mutations in the PCCB gene in European propionic acidemia patients. Hum Mutat, Mutation in brief no. 253.
5. Ugarte M*, Pérez-Cerdá C, Rodríguez-Pombo P, Desviat LR, Pérez B, Richard E, **Muro S**, Campeau E, Ohura T, Gravel RA. (1999) Overview of mutations in the PCCA and PCCB genes causing propionic acidemia. Hum Mutat, 14:257-282.
6. **Muro S**, Pérez-Cerdá C, Rodríguez-Pombo P, Pérez B, Briones P, Ribes A, Ugarte M*. (1999) Feasibility of DNA based methods for prenatal diagnosis and carrier detection of propionic acidemia. J Med Genet, 36(5):412-414.
7. Pérez-Cerdá C, Merinero B, Rodríguez-Pombo P, Pérez B, Desviat LR, **Muro S**, Richard E, García MJ, Gangoiti J, Ruiz Sala P, Sanz P, Briones P, Ribes A, Martínez-Pardo M, Campistol J, Pérez M, Lama R, Murga ML, Lema-Garret T, Verdú A, Ugarte M*. (2000) Potential relationship between genotype and clinical outcome in propionic acidemia patients. Eur J Hum Genet, 8:187-194.
8. **Muro S**, Pérez B, Rodríguez-Pombo P, Desviat LR, Pérez-Cerdá C, Ugarte M*. (2000) Mutations affecting the β-β homomeric interaction in propionic acidemia: an approach towards the determination of the β-PCC functional domains. J Inher Metab Dis, 23:299-304. *Outstanding paper; European Society for the Study of Inborn Errors of Metabolism*
9. **Muro S**, Pérez B, Desviat LR, Rodríguez-Pombo P, Pérez-Cerdá C, Ugarte M*. (2001) Effect of PCCB gene mutations on the heteromeric and homomeric assembly of propionyl-CoA carboxylase. Mol Genet Metab, 74: 476-483.
10. Murciano JC, **Muro S**, Koniaris L, Christofidou-Solomidou M, Harshaw D, Albelda SM, Granger DN, Cines DB, Muzykantov VR*. (2003) ICAM-directed vascular immunotargeting of plasminogen activators to the endothelial luminal surface. Blood, 101(10): 3977-3984. *Press release on this article*
11. Kozower BD, Christofidou-Solomidou M, Sweitzer TD, **Muro S**, Buerk DG, Solomides CC, Albelda SM, Patterson GA, Muzykantov VR*. (2003) Immunotargeting of catalase to the pulmonary endothelium alleviates oxidative stress and reduces acute lung transplantation injury. Nat Biotechnol, 21(4): 392-398. *Journal editorial & press release on this article*
12. **Muro S**, Wiewrodt R, Thomas A, Koniaris L, Albelda SM, Muzykantov VR, Koval M*. (2003) A novel endocytic pathway induced by clustering endothelial ICAM-1 or PECAM-1. J Cell Sci, 116(8): 1599-1609. *Journal editorial on this article*
13. **Muro S**, Cui X, Gajewski CM, Murciano J-C, Muzykantov VR, Koval M*. (2003) Slow intracellular trafficking of catalase nanoparticles targeted to ICAM-1 protects endothelial cells from oxidative stress. Am J Phys-Cell Physiology, 285(5):C1339-47.
14. **Muro S**, Koval M, Muzykantov V*. (2004) Endothelial endocytic pathways: gates for vascular drug delivery. Current Vasc Pharm, 2(3):281-299.
15. **Muro S***, Gajewski CM, Koval M, Muzykantov VR. (2005) ICAM-1 recycling in endothelial cells: a novel pathway for sustained intracellular delivery and prolonged effects of drugs. Blood, 105(2):650-658.
16. **Muro S**, Muzykantov V*. (2005) Targeting of antioxidant and anti-thrombotic drugs to endothelial cell adhesion molecules. Current Pharm Design, 11(18):2383-2401.
17. Ding B, Dziubla T, Shuvaev V, **Muro S**, Muzykantov V*. (2006) Advanced drug delivery systems that target the vascular endothelium. Mol Interv, 6(2):98-112. *Featured in the journal cover*
18. **Muro S***, Schuchman E, Muzykantov V. (2006) Lysosomal enzyme delivery by ICAM-1 targeted nanocarriers bypassing glycosylation- and clathrin-dependent endocytosis. Mol Ther, 13(1):135-141.
19. **Muro S**, Mateescu M, Robinson M, Muzykantov VR*, Koval M*. (2006) Control of intracellular trafficking of ICAM-1-targeted nanocarriers by endothelial Na+/H+ Exchanger proteins. Am J Physiol Lung Cell Mol Physiol, 290(5):809-

817. *Editorial on this paper*

20. **Muro S**, Dziubla T, Qiu W, Leferovich J, Cui X, Berk E, Muzykantov VR*. (2006) Endothelial targeting of high-affinity multivalent polymer nanocarriers directed to ICAM-1. J Pharm Exp Ther, 317(3):1161-1169.
21. Rosin R*, **Muro S**, Welch MJ, Muzykantov V, Schuster DP. (2008) In vivo imaging of 64Cu-labeled polymer nanoparticles to the lung endothelium. J Nucl Med, 49(1):103-111.
22. Garnacho C, Shuvaev V, Thomas A, McKenna L, Sun J, Koval M, Albelda S, Muzykantov V*, **Muro S***. (2008) RhoA activation and actin reorganization involved in endothelial CAM-mediated endocytosis of anti-PECAM carriers: critical role for tyrosine 686 in the cytoplasmic tail of PECAM-1. Blood, 111(6):3024-3033.
23. Garnacho C, Dhami R, Simone E, Dziubla T, Leferovich J, Schuchman E, Muzykantov V, **Muro S***. (2008) Delivery of acid sphingomyelinase in normal and Niemann-Pick disease mice using ICAM-1-targeted polymer nanocarriers. J Pharm Exp Ther, 325(2):400-408.
24. **Muro S***, Garnacho C, Champion J, Leferovich J, Gajewski C, Schuchman E, Mitragotri S, Muzykantov V*. (2008) Controlled endothelial targeting and intracellular delivery of therapeutics by modulating size and shape of ICAM-1-targeted carriers. Mol Ther, 16(8):1450-1458. *Featured in journal cover*
25. Garnacho C, Albelda S, Muzykantov V*, **Muro S***. (2008) Differential intra-endothelial delivery of polymer nanocarriers targeted to distinct PECAM-1 epitopes. J Control Rel, 130(3):226-233.
26. Finikova O, Lebedev A, Aprelev A, Troxler T, Gao F, Garnacho C, **Muro S**, Hochstrasser R, Vinogradov S*. (2008) Oxygen microscopy by two-photon-excited phosphorescence. Chem Phys Chem, 9(12):1673-1679. *Featured in the journal cover*
27. Calderon A, Muzykantov V, **Muro S***, Eckmann D*. (2009) Flow dynamics, binding and detachment of spherical carriers targeted to ICAM-1 on endothelial cells. Biorheology, 46(4):323-341.
28. Calderon A, Bhowmick T, Leferovich J, Burmann B, Pichette B, Muzykantov V, Eckmann D*, **Muro S***. (2011) Optimizing endothelial targeting by modulating the antibody density and particle concentration of anti-ICAM coated carriers. J Control Rel, 150(1):37-44.
29. **Muro S***. (2010) New biotechnological and nanomedicine strategies for treatment of lysosomal storage disorders. WIREs Nanomedicine & Nanobiotechnology, 2:189-204.
30. Muzykantov V*, **Muro S**. (2011) Targeting delivery of drugs in the vascular system. Int J Trans Phenomena, 12:41-49.
31. Hsu J, Serrano D, Bhowmick T, Kumar K, Kuo YC, Shen Y, **Muro S***. (2011) Enhanced endothelial delivery and biochemical effects of α-galactosidase by ICAM-1-targeted nanocarriers for Fabry disease. J Control Rel, 10;149(3):323-31. *Featured in journal cover and cover-story editorial*
32. Calderon A, Baig M, Pichette B, Muzykantov V, **Muro S**, Eckmann D*. (2011) Effect of glycocalyx on drug delivery carriers targeted to endothelial cells. Int J Trans Phenomena, 12:63-65.
33. Shuvaev V, Ilies M, Simone E, Zaitsev S, Kim Y, Cai S, Mahmud A, Dziubla T, **Muro S**, Discher D, Muzykantov V*. (2011) Endothelial targeting of antibody-decorated polymeric filomicelles. ACS Nano, 5(9):6991-6999.
34. Bhowmick T, Berk E, Cui X, Muzykantov V*, **Muro S***. (2012) Effect of flow on endothelial endocytosis of nanocarriers targeted to ICAM-1. J Control Rel, 157(3):485-492.
35. Hsu J, Northrup L, Bhowmick T, **Muro S***. (2012) Delivery of α-glucosidase for Pompe disease by ICAM-1-targeted polymer nanocarriers: a comparative performance of a strategy for three distinct lysosomal storage disorders. Nanomed, 8(5):731-739.
36. Garnacho C, Serrano D, **Muro S***. (2012) A fibrinogen-derived peptide provides ICAM-1-specific vascular targeting and intra-endothelial transport of polymers nanocarriers in cell cultures and mice. J Pharm Exp Ther, 340(3):638-647.
37. Serrano D, Bhowmick T, Chadha R, Garnacho C, **Muro S***. (2012) Intercellular adhesion molecule 1 engagement modulates sphingomyelinase and ceramide, supporting uptake of drug carriers by the vascular endothelium. Arterioscler Thromb Vasc Biol, 32(5):1178-1185. *Journal editorial on this article*
38. Bacalocostantis I, Mane VP, Kang MS, Goodley AS, **Muro S**, Kofinas P*. (2012) Effect of thiol pendant conjugates on plasmid DNA binding, release, and stability of polymeric delivery vectors. Biomacromolecules, 13(5):1331-1339.
39. Simone EA, Zern BJ, Chacko AM, Mikitsh JL, Blankemeyer ER**, Muro S,** Stan RV, Muzykantov VR*. (2012) Endothelial targeting of polymeric nanoparticles labeled with the PET imaging radioisotope ^{124}I. Biomaterials, 33(21):5406-5413.
40. Ghaffarian R, Bhowmick T, **Muro S*.** (2012) Transport of nanocarriers across gastrointestinal epithelial cells by a new transcellular route induced by targeting ICAM-1. J Control Release, 163(1):25-33. *Featured in journal cover*
41. **Muro S***. (2012) Strategies for delivery of therapeutics into the central nervous system for treatment of lysosomal storage disorders. Drug Deliv Transl Res, 2(3):169-186.
42. Mane V, **Muro S***. (2012) Biodistribution and endocytosis of ICAM-1-targeting antibodies versus nanocarriers in the gastrointestinal tract in mice. Int J Nanomedicine, 7:4223-4237.
43. Han J, Zern BJ, Shuvaev VV, Davies PF, **Muro S**, Muzykantov V*. (2012) Acute and chronic shear stress differently regulate endothelial internalization of nanocarriers targeted to platelet-endothelial cell adhesion molecule-1. ACS Nano, 6(10):8824-8836.

44. **Muro S***. (2012) Challenges in design and characterization of ligand-targeted drug delivery systems. J Control Release, 164(2):125-137. *Co-featured in the journal cover.*
45. Bacalocostantis I, Mane VP, Goodley AS, Bentley WE, **Muro S**, Kofinas P*. (2013) Investigation of polymer thiolation in gene delivery. J Biomater Sci Polym Ed. 24(8): 912-926
46. Papademetriou J, Garnacho C, Serrano D, Bhowmick T, Schuchman EH, **Muro S***. (2013) Comparative binding, endocytosis, and biodistribution of antibodies and antibody-coated carriers for targeted delivery of lysosomal enzymes to ICAM-1 versus transferrin receptor. J Inherit Metab Dis. 36(3):467-77.
47. Papademetriou J, Garnacho C, Schuchman EH, **Muro S***. (2013) *In vivo* performance of polymer nanocarriers dually-targeted to epitopes of the same or different receptors. Biomaterials. 34(13):3459-66.
48. Ghaffarian R, **Muro S***. (2013) Models and methods to evaluate transport of drug delivery systems across cellular barriers. J Vis Exp. Oct 17;(80):e50638.
49. Hsu J, Bhowmick T, Burks S, Kao J, **Muro S***. (2013) Enhancing biodistribution of therapeutic enzymes in vivo by modulating surface coating and concentration of ICAM-1-targeted nanocarriers. J Biomed Nanotech. 10(2):345-354. *Marked "of medical relevance" by the journal*
50. Ansar M, Bhowmick T, Papademetriou I, Serrano D, **Muro S***. (2013) Biological functionalization of drug delivery carriers to bypass size restrictions of receptor-mediated endocytosis independently from receptor targeting. ACS Nano. 7(12):10597-611.
51. Hsu J, Rappaport J, **Muro S***. (2014) Specific binding, uptake, and transport of ICAM-1-targeted nanocarriers across endothelial and subendothelial cell components of the blood-brain barrier. Pharm Res. 31(7):1855-66.
52. **Muro S***. (2014) A DNA device that mediates selective endosomal escape and intracellular delivery of drugs and biological. Adv Funct Mat, 24(19):2899-2906.
53. Papademetriou I, Tsinas Z, Hsu J, **Muro S***. (2014) Combination-targeting to multiple endothelial cell adhesion molecules modulates binding, endocytosis, and in vivo biodistribution of drug nanocarriers and their therapeutic cargoes. J Control Release. 188:87-98
54. Rappaport J, Garnacho C, **Muro S***. (2014) Clathrin-mediated endocytosis is impaired in type A-B Niemann-Pick disease model cells and can be restored by ICAM-1-mediated enzyme replacement. Mol Pharm. 11(8):2887-2895.
55. Ghaffarian R, **Muro S***. (2014) Distinct subcellular trafficking resulting from monomeric vs. multimeric targeting to endothelial ICAM-1: implications for drug delivery. Mol Pharm. 11(12):4350-4362.
56. Shapiro B*, Kulkarni S, Nacev A, **Muro S**, Stepanov PY, Weinberg IN. (2015) Open challenges in magnetic drug targeting. Wiley Interdiscip Rev Nanomed Nanobiotechnol. 7(3):446-457
57. Hsu J, Hoenicka J, **Muro S***. (2015) Targeting, endocytosis and lysosomal delivery of active enzymes to the cell body and processes of model human neurons by ICAM-1-tageted nanocarriers. Pharm Res. 32(4):1264-1278.
58. Rappaport J, Manthe R, Garnacho C, **Muro S***. (2015) Altered clathrin-independent endocytosis in type A Niemann-Pick disease cells and rescue by ICAM-1 enzyme delivery. Mol Pharm. 12(5):1366-1376.
59. Han J, Shuvaev VV, Davies PF, Eckmann DM, **Muro S**, Muzykantov VR*. (2015) Flow shear stress differentially regulates endothelial uptake of nanocarriers targeted to distinct epitopes of PECAM-1. J Control Release. 210:39-47.
60. Rappaport J, Manthe R, Solomon M, Garnacho C, **Muro S***. (2016) A Comparative study on the alterations of endocytic pathways in multiple lysosomal storage disorders. Mol Pharm. 13(2):357–368.
61. Getts R, **Muro S***. (2016) DNA-based drug carriers: the paradox of a classical "cargo" material becoming a versatile "carrier" to overcome barriers in drug delivery. Curr. Pharm. Des. 2016;22(9):1245-1258.
62. Ghaffarian R, Pérez-Herrero E, Oh H, Raghavan S, **Muro S***. (2016) Chitosan-alginate microcapsules provide gastric protection and intestinal release of ICAM-1-targeting nanocarriers, enabling GI targeting in vivo. Adv. Func. Mat. 26(20):3382-3393. *Featured in the journal cover*
63. Ghaffarian R, Roki N, Abouzeid A, Vreeland W, and **Muro S***. (2016) Intra- and trans-cellular delivery of enzymes by direct conjugation with non-multivalent anti-ICAM molecules. J Control Release, 238:221-230.
64. Shuvaev V, **Muro S,** Arguiri E, Khoshnejad M, Tliba S, Christofidou-Solomidou**,** Muzykantov V*. (2016) Size and targeting to PECAM-1 vs ICAM-1 control endothelial delivery, internalization and protective effect of multimolecular SOD conjugates. J Control Release, 234:115-123.
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67. Manthe R, **Muro S***. (2017) ICAM-1-targeted nanocarriers attenuate endothelial release of sICAM-1, and inflammatory regulator. Bioeng. Transl. Med. 2(1): 109-119.
68. Solomon M; **Muro S***. (2017) Lysosomal enzyme replacement therapies: historical development, clinical outcomes, and future perspectives. Adv Drug Deliv Rev. 118: 109-134.

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74. **Muro S*.** (2018) Alterations in cellular processes involving vesicular trafficking and implications in drug delivery. Biomimetics. 3(3):19.
75. Manthe R, Rappaport J, Solomon M, Gugutkov D, Hildreth M, Velovolu V, Long Y, Marugan J, Zheng W, **Muro S***. (2019) δ-Tocopherol Effect on Endocytosis and its Combination with Enzyme Replacement Therapy for Lysosomal Disorders: a New Type of Drug Interaction? J Pharm Exp Ther. 379(3):823-833.
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78. Manthe R, Loeck M, Bhowmick T, Solomon M, **Muro S*.** (2020) Intertwined mechanisms define transport of anti-ICAM nanocarriers across the endothelium and brain delivery of a therapeutic enzyme. J Control Rel. 324:181-193. *Press Release*
79. Roki N, Solomon M, Casta L, Bowers J, Getts RC, **Muro S*.** (2021) A method to improve quantitative radiotracing-based analysis of the in vivo biodistribution of drug carriers. Bioeng Transl Med, 6(2):e10208.
80 Chen Y, Toth EA, Ruana B, Choia EJ, Simmermana R, Chen Y, He Y, Wang R, Godoy-Ruiz R, King H, Custer G, Travis Gallagher D, Rozak DA, Solomon M, **Muro S**, Weber DJ, Orban J*, Fuerst TR*, Bryan PN*. (2021) Engineering subtilisin proteases that specifically degrade active RAS. Commun Biol, 5(1):299.
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85. Placci M, Giannotti MI, **Muro S*.** (2023) Polymer-based drug delivery systems under investigation for enzyme replacement and other therapies of lysosomal storage disorders. Adv Drug Deliv Rev, 197:114683.
86. Loeck M, Placci M, **Muro S*.** (2023) Effect of acid sphingomyelinase deficiency in type A Niemann-Pick disease on the transport of therapeutic nanocarriers across the blood-brain barrier. Drug Deliv Transl Res, 13(12):3077-3093.
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88. Del Moral M, Loeck M, Muntimadugu E, Vives G, Pham V, Pfeifer P, Battaglia G, **Muro S*.** (2023) Role of the Lactide:Glycolide Ratio in PLGA Nanoparticle Stability and Release under Lysosomal Conditions for Enzyme Replacement Therapy of Lysosomal Storage Disorders. J Funct Biomater, 14(9):440.
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91. Vigo M, Placci M, **Muro S*.** (2024) Presence of ICAM-1 isoforms in human cells impacts the selection of antibodies for nanocarrier targeting. J Drug Deliv Sci Technol**.** doi.org/10.1016/j.jddst.2024.106582
92. Vigo M, Palma-Florez S, Crespo A, Lagunas A, Mir M, Samitier J*, **Muro S*.** (2025) Mechanistic studies on CAM-mediated transcytosis using a blood-brain barrier-on-a-chip device. In preparation.
93. Loeck M, Gutierrez E, Pons R, Placci M, Selvados A, Solomon M, Garcia-Parajo M*, **Muro S***. (2025) Glucocerebrosidase deficiency, Gaucher disease cause and Parkinson disease marker, alters transport of drug nanocarriers across the blood-brain barrier. In preparation.
94. Hildreth M, Vigo M, Placci M, Luk A, Velovolu V, Solomon M, **Muro S***. (2025) ICAM-1 engagement by anti-ICAM-1 nanocarriers induces lysosomal secretion and ameliorates lysosomal storage disorders. In preparation.

2.d. Books

Books authored or edited:

1. **Muro S***. (Ed.) (2016) Drug delivery across physiological barriers. Pan Stanford. ISBN 9789814669405.

Chapters in books: (*Marks corresponding authors)

1. **Muro S**, Muzykantov V*, Murciano J-C. (2004) Characterization of endothelial internalization and targeting of antibody-enzyme conjugates in cell cultures and in laboratory animals. In: Niemeyer CM, ed. Methods Mol Biol, vol. 283. Bioconjugation Protocols Series. Humana Press, Totowa, NJ. Chapter 2:21-36.
2. Schuchman E*, **Muro S.** (2006) The development of enzyme replacement therapy for lysosomal diseases: Gaucher disease and beyond. In: Futerman T, Zimran A, eds. Gaucher disease: Lessons learned about therapy of lysosomal diseases. CRC Press, Taylor & Francis Group, Boca Raton, FL. Chapter 8:125-140.
3. Dziubla T, **Muro S**, Muzykantov V.R*, Koval M*. (2006) Nanoscale antioxidant therapeutics. In: Singh K K, ed. Oxidative stress, disease and cancer. Imperial College Press, London, UK. Chapter 37:1023-1044.
4. **Muro S***. (2007) Intercellular adhesion molecule-1 and vascular cell adhesion molecule-1. In: Aird W, ed. Endothelial biomedicine. Cambridge University Press, New York, NY. Chapter 117:1058-1070.
5. **Muro S**, Muzykantov V*. (2010) Affinity and geometry of drug carriers: design parameters for rational control of intracellular delivery. In: Weissig V, D'Souza GGM, eds. Organelle-specific pharmaceutical nanotechnology. John Wiley & Sons, Hoboken, NJ. Chapter 24: 449-474.
6. Hsu J, **Muro S***. (2011) Nanomedicine and drug delivery strategies for treatment of genetic diseases. In: Plaseska-Karanfilska D, ed. Genetic Disease. InTech, Rijeka, Croatia. Chapter 14:241-266.
7. Manthe R, **Muro S***. (2013) Lysosomes and nanotherapeutics: diseases, treatments, and side effects. In: Handbook of Nanobiomedical Research. Torchilin V (Ed.). World Scientific. Volume 2, Chapter 8:261-305.
8. Serrano D, **Muro S***. (2014) Endothelial cell adhesion molecules and drug delivery applications. In: Mechanobiology of the endothelium. Aranda-Espinoza H (Ed.). CRC Press, Boca Raton, USA. Chapter 9:185-226.
9. Rappaport J, Papademetriou J, **Muro S***. (2016) Drug delivery through the endo-lysosomal route. In: Drug delivery across physiological barriers, Muro S (Ed.). Pan Stanford. Chapter 12:313-339.
10. Martinez AP, Qamar B, Marin A, Fuerst TR, **Muro S***, Andrianov AK*. (2017) Biodegradable "scaffold" polyphosphazenes for non-covalent PEGylation of proteins. In: Polyphosphazenes in biomedicine, engineering, and pioneering synthesis, Andrianov AK and Harry R. Allcock HR. (Eds.). ACS Publications-ACS Symposium Series. Chapter 6:121–141.

2.e. Other Publications

Newsletters and editorials: (* Marks corresponding authors)

1. **Muro S***. (2006) Delivery of therapeutic enzymes by targeted nanocarriers: new treatment strategies for lysosomal storage disorders. Pharmacology Newsletter, University of Pennsylvania 14(1):1-5. *Featured in the newsletter cover*
2. **Muro S***. (2011) Efficient and safe intra-cellular delivery of targeted nanomedicines: are we there yet?.J Nanomed Biother Discov. Editorial, 1:2.
3. **Muro S***. (2016) Drug delivery: open sesame strategies for the one thousand and one body barriers. Curr Pharm Des. 22(9):1103-1104.
4. **Muro S*.** (2021) Drug delivery systems: a few examples of applications, drug cargoes, and administration routes. Curr Pharm Des, 27(17):1975-1976.
5. **Muro S*.** (2023) Lysosomal therapies and drug delivery strategies: An overview. Adv Drug Deliv Rev., 202:115112.

2.f. Intellectual Property & Patents

(* Marks lead inventors)

1. **Muro S***, Schuchman E, Muzykantov VR. Targeted protein replacement for the treatment of lysosomal storage disorders. US provisional patent application 60/584,648 filed 07/01/04. International patent application WO2006007560 A2, PCT/US05/02359 filed 07/01/05. **Issued**
2. **Muro S***, Muzykantov VR. Targeted nanocarriers for intracellular drug delivery. US provisional patent application 60/931,552 filed 05/23/07. International Patent Application WO2008147526 A1, PCT/US2008/06589 filed 05/22/08. **Issued & Out-licensed** (Code Biotherapeutics)
3. **Muro S***, Stover T, Schuchman E, Muzykantov VR. Targeted carriers for drug delivery across endothelial barriers. UPenn invention disclosure U4677 (2008).
4. **Muro S***, Ming, M, Garnacho C. Peptides for transport of therapeutics and their carriers in mouse models and humans. US provisional patent applications 61/184,657 filed 06/05/09, and 61/220,404 filed 06/25/09. International patent application WO2010141879 A9, PCT/US2010/37490 filed 06/04/10. **Issued**
5. Marugan J*, Zhang W, **Muro S**. Delivery of a therapeutic protein across the blood-brain barrier for Alzheimer's disease treatment. US provisional patent application 61/286,205 filed 12/14/09. International patent application WO2011081904 A1, PCT/US2010/060205 filed 12/14/10.
6. **Muro S***, Ghaffarian R. Targeted carriers for drug delivery across the gastrointestinal epithelium (2010). US provisional patent application 61/330,739 filed 05/03/10, second provisional patent application 61/481,779 filed 05/03/11, US patent application US20120263652 A1, filed 05/03/12. **Issued** *Outstanding Invention of the Year, Life Sciences, U. Maryland College Park, MD (2011) and Best Investor Pitch (2012).*
7. **Muro S***, Serrano D. A new strategy to regulate interaction of leukocytes with endothelium and to potentiate cell transport of therapeutics and their carriers. US provisional patent application 61/393,131 filed 10/14/10, and 61/547687 filed 10/15/2011. Non-provisional patent application US20130095091 A1, filed 10/15/2012. **Issued**
8. **Muro S***, Garnacho C. Strategy for endothelial clearance of blood clot components. US provisional patent application 61/418,610 filed 12/01/10, and 61/565957 filed 12/01/2011.
9. **Muro S***, Chen J, Solomon M, Gray K. ICAM-1 targeted fusion enzymes. US provisional patent application filed 12/17/18. Second US provisional patent application filed 11/18/19. Non-provisional application filed 11/18/20. **Issued & Optioned** (NeuImmune)
10. **Muro S*,** Roki N, Getts R. Enhanced targeting using oligonucleotide-antibody conjugates. US 2022018855, W 20220304, WO 2022187586 A1, filed on 09/09/2022; EP 4301859 A1 filed on 01/10/2024.
11. **Muro S*,** Vigo M, Placci M. Antibodies against ICAM-1 and applications thereof. Patent application EP24382946 filed on 03/09/2024.

2.g. Talks, Abstracts, and Other Professional Papers Presented

Invited talks: (**Muro** is single speaker)

1. Intracellular delivery of antioxidant enzymes by anti-ICAM nanocarriers (Apr. 2004) Institute for Medical Engineering, University of Pennsylvania, Philadelphia, PA.
2. Immunotargeting cell adhesion molecules: an alternative gate for lysosomal enzyme delivery (Oct. 2004) Department of Human Genetics, Mount Sinai School of Medicine, New York, NY.
3. Targeted nanocarriers for lysosomal enzyme replacement therapies. (Feb. 2006) Institute for Medical Engineering, University of Pennsylvania, Philadelphia, PA.
4. Lysosomal enzyme replacement therapies by targeted nanocarriers. (Mar. 2006) Pulmonary Allergy and Immunology Research Conference, University of Pennsylvania, Philadelphia, PA.
5. Niemann-Pick B enzyme delivery to the pulmonary vasculature using nanocarriers with high endothelial affinity. (Jun. 2006) 12th Annual Respiration Research Retreat, University of Pennsylvania, Philadelphia, PA.
6. Controlled sub-cellular delivery of enzyme therapies by nanocarriers targeted to cell adhesion molecules. (Oct. 2006) Department of Human Genetics, Mount Sinai School of Medicine, New York, NY.
7. Targeting drugs to the endothelial cell adhesion molecule ICAM-1. (Nov. 2006) 1st Annual Targeted Therapeutics Retreat, University of Pennsylvania, Philadelphia, PA.
8. Vesicular transport mediated by endothelial cell adhesion molecules: a gate for vascular delivery of enzyme therapies. (Oct. 2007) Vascular Biology Seminars, Dartmouth Medical Center, Lebanon, NH.
9. Controlled subcellular delivery of nanotherapeutics by endothelial vesicular transport. (Nov. 2007) Department of Pharmaceutical Sciences, Eugene Applebaum College of Pharmacy & Health Sciences, Wayne State University, Detroit, MI.
10. Controlled subcellular delivery of nanotherapeutics by endothelial vesicular transport. (Dec. 2007) Department of. Pharmaceutical & Biomedical Sciences, College of Pharmacy, University of Georgia, Athens, GA.
11. Vesicular transport mediated by endothelial cell adhesion molecules: a gate for vascular delivery of nanotherapeutics. (Feb. 2008) Department of Physiology and Cardiovascular Research Center, School of Medicine, Temple University, Philadelphia, PA.
12. Intracellular drug delivery to endothelium. (Mar. 2008) Department of Pharmacology, Case Western Reserve University, Cleveland, OH.

13. Control of subcellular delivery of targeted polymer therapeutics by endothelial vesicular transport. (May 2008) 7th International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice. Centro de Investigación Príncipe Felipe, Valencia, Spain.
14. Controlled subcellular delivery of therapeutics by endocytic transport. (Sep. 2008) Fischell Department of Bioengineering, School of Engineering, University of Maryland College Park, College Park, MD.
15. Endocytosis in health and disease: designing new therapeutic interventions. (Oct. 2008) Department of Cell Biology and Molecular Genetics, University of Maryland College Park, College Park, MD.
16. Optimizing delivery of nanotherapeutics by mimicking cell invasion by pathogens. (Nov. 2008) Center for Advanced Research in Biotechnology, University of Maryland Biotechnology Institute, Shady Grove, MD.
17. Designing drug delivery carriers with zip code. (Apr. 2009) 7th Annual Retreat of the Medical Biotechnology Center, Baltimore, MD.
18. Designing drug delivery carriers with zip code. (Jul. 2009) Department of Bioengineering, University of Texas, Arlington, TX.
19. Endocytic transport and site-specific drug delivery. (Dec. 2009) Biology Dept., Howard University, Washington DC.
20. Design of strategies for site-specific drug delivery. (Feb. 2010) NIH Chemical Genomic Center, Bethesda, MD.
21. Endocytic transport and site-specific drug delivery. (May. 2010) Center of Marine Biotechnology, Baltimore, MD.
22. Targeted nanocarriers for therapeutic intervention of lysosomal storage disorders. (Nov. 2010) Biotechnology Program, Biology Department, Catholic University of America, Washington DC.
23. ICAM-1-targeted nanocarriers for brain delivery of lysosomal enzymes. (Nov. 2010) Batten disease workshop, NIH, Bethesda, MD.
24. Endocytic transport and site-specific drug delivery. (Dec. 2010) NIDDK Center Grants Site Visit, University of Pennsylvania School of Medicine, Philadelphia, PA.
25. Site-specific drug delivery by targeting endocytic transport pathways. (Mar. 2011) UMD-NCI workshop, University of Maryland College Park, MD
26. Targeting therapeutic carriers across the blood-brain barrier. (Jul. 2011) CNS Drug Delivery: From Proof of Concept to Clinical Readiness, 38th Annual Meeting of the Controlled Release Society's, National Harbor, MD.
27. Delivery of lysosomal enzyme replacement therapies by targeted nanocarriers. (Oct. 2011) 9th International Nanomedicine and Drug Delivery Symposium, University of Utah, Salt Lake City, UT.
28. Targeting specificity and intracellular delivery of nanomedicines: achievements and challenges. (Oct. 2011) Workshop: Drug delivery and cancer: today's challenges, tomorrow's directions. Purdue University Center for Cancer Research, West Lafayette, IN.
29. Delivery of lysosomal enzyme therapies by targeted nanocarriers. (Nov. 2011) Targeted Therapeutics Program, Department of Pharmacology, University of Pennsylvania, Philadelphia, PA.
30. Targeted drug delivery systems: achievements and challenges. (Mar. 2012) International conference on Nanotechnology and Nanomedine (NANO-12), Omaha, NE.
31. ICAM-1 targeting of nanocarriers to the central nervous system. (Mar. 2012) Workshop “Brains for Brain”. Frankfurt, Germany.
32. Pharmacokinetics and subcellular transport of therapeutic nanocarriers targeted to ICAM-1. (Mar. 2012) Seminar series of the Department of Chemical and Biomolecular Engineering, University of Tennessee, TN.
33. Transport of therapeutic nanocarriers into and across cells in the body. (Apr. 2012) Seminar series of the Department of Veterinary Medicine, University of Maryland, MD.
34. Sub-cellular transport of drug delivery systems: an intricate road. (Jul. 2012) 39th Annual Meeting of the Controlled Release Society's, Quebec City, QC, Canada.
35. ICAM-1-targeted transport of therapeutic nanocarriers. (Aug. 2012) Gordon Conference on Drug Carriers in Medicine and Biology, Waterville, NH.
36. Controlling ICAM-1 targeting and subcellular transport of therapeutic polymer carriers. (Aug. 2012). Annual Meeting of the American Chemical Society, Philadelphia, PA.
37. Designing nanomedicines to overcome physiological barriers. (Oct. 2012) Annual Bioengineering Department “Fischell” Festival. College Park, MD.
38. Enzyme replacement therapy by targeted nanocarriers. (Nov. 2012) Annual Meeting of the Argentinian Nanomedicine Society, Potrero de los Funes, Argentina.
39. ICAM-1-mediated endocytosis in nanomedicine applications. (Dec. 2012) Seminar Series of the Institute for Environmental Medicine, University of Pennsylvania. Philadelphia, PA.
40. Nanomedicines and applications for the treatment of rare disorders. (Apr. 2013) Seminar series of the Department of Cytology and Histology, Faculty of Medicine, University of Seville, Seville, Spain.
41. Nanomedicines and applications for the treatment of rare disorders. (Apr. 2013) Seminar series of the Príncipe Felipe Research Center, Valencia, Spain.
42. Transport of drug carriers across cell barriers. (Apr. 2013) Center for Biomedical Engineering and Technology, University of Maryland, Baltimore, MD.

43. Transport of nanomedicines across physiological barriers. (Jul. 2013) Nanomedicine Day, Baltimore, MD.
44. Bioengineering: mission and career paths. (Nov. 2013) Seminars of the Society for Biological Engineers, University of Maryland College Park, MD.
45. Targeted nanocarriers for delivery of lysosomal enzymes to the brain. (Mar. 2014) Batten disease workshop, NIH, Bethesda, MD.
46. Transport of nanomedicines across physiological barriers (Apr. 2014) Seminar series of the Department of Biology, Villanova University, Villanova, PA.
47. Transport of nanomedicines across physiological barriers (Apr. 2014) Seminar series of the Krasnow Institute for Advance Study, George Mason University, Fairfax, VA.
48. Receptor mediated endocytosis: from biology to drug delivery and back (May 2014) Seminar series of the Fischell Department of Bioengineering, University of Maryland College Park, MD.
49. Impact of pathophysiological factors on the endocytic trafficking of drug carriers (May 2014) 10th International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice. Centro de Investigación Príncipe Felipe, Valencia, Spain. *Plenary speaker*
50. Intracellular and transcellular targeting of nanocarriers in the vasculature (Aug. 2014) 5th International Conference on Nanotechnology: Fundamentals and Applications, Prague, Czech Republic.
51. Pulmonary drug targeting via endothelial cell adhesion molecules (Sep. 2014) Workshop of the Division of Lung Diseases, National Heart, Lung, and Blood Institute. Bethesda, MD.
52. Designing nanomedicines to overcome physiological barriers. (Nov. 2014). Seminar Series of the College of Health Sciences. University of Delaware, DE.
53. A DNA device that mediates selective endosomal escape and intracellular delivery of drugs and biological. (Dec. 2014) Annual Meeting of Genisphere LLC Scientific Advisory Board Meeting. Philadelphia, PA.
54. Controlling targeting and transport of drug delivery systems by biological functionalization of nanomaterials. (Dec. 2014) Seminar Series of the Materials Sciences Program, University of Wisconsin in Madison, WI.
55. Pulmonary drug targeting via endothelial cell adhesion molecules (Jan. 2015) Transatlantic Airway Conference on Pulmonary Nanomedicine, Lucerne, Switzerland. *Invited and scheduled, but could not travel due to a medical problem.*
56. Targeting strategies to transport therapeutic nanomedicines across physiological barriers. (Feb. 2015) Clinical Talks: Nanomedicine, Pharmacy School, University of Albacete, Spain.
57. Overcoming body barriers to drug delivery: an interdisciplinary approach. (Apr. 2015) Seminar Series of the NANO Institute of Utath, College of Pharmacy, University of Utah, Salt Lake City, Utah.
58. Smart nanotherapeutics: overcoming body barriers to drug delivery. (May 2015) Seminar Series of the iNANO Institute, University of Aarhus, Denmark.
59. Controlling targeting and transport of drug delivery systems by biological functionalization. (May 2015) Seminar Series of the Centro de Investigacion Principe Felipe, Valencia, Spain.
60. Drug delivery across cell barriers via Cell Adhesion Molecule mediated transport (Oct. 2015) American Association of Pharmacology Scientists, Orlando, FL. *Educational Session speaker*
61. Mechanism of intra- and trans-endothelial delivery of nanotherapeutics (Aug. 2016) Gordon Research Conference: Drug Carriers in Medicine and Biology, Waterville Valley, NH.
62. Nano-biotechnology for drug delivery: fundamental aspects and applications (Nov. 2016) Special seminar, Sant Joan de Deu Pediatric Hospital, Barcelona, Spain.
63. Nano-biotechnology for drug delivery: fundamental aspects and applications (Nov. 2016) Special series of the Institute of Bioengineering of Catalonia, Barcelona, Spain.
64. Nano-biotechnology for drug delivery: fundamental aspects and applications (Jan 2017) Seminar series of the Department of Drug Discovery and Biomedical Sciences, University of South Carolina, Columbia, SC.
66. ICAM-1 targeting and nanocarrier-based delivery of lysosomal enzymes. (Mar. 2017) Gordon Research Conference: Understanding Lysosomal Biology and Disease Mechanisms to Develop New Therapies for Lysosomal Diseases, Barga, Italy.
67. ICAM-1-mediated transport into and across endothelial barriers. (Apr. 2017) Frontiers in CNS Drug Delivery Symposium, Berlin, Germany. *Highlight*
68. ICAM-1 targeting and intra/trans cellular drug delivery. (Apr. 2017) Center for Biomedical Engineering and Technology, University of Maryland, Baltimore, MD.
69. Optimizing specific targeting vs. phagocytic clearance of drug nanocarriers. (Sep. 2017) Nanomedicine and Drug Delivery Symposium (NanoDDS), Ann Arbor, MI. *(could not deliver due to medical problem).*
70. Receptor-targeted drug delivery: biological mechanistic and applications. (Nov. 2017) NanoBio&Med 2017, Barcelona, Spain. *Keynote speaker*
71. Mechanistic parameters ruling receptor-mediated transport of nanotherapeutics. (Feb 2018) U.S. National Institutes of Standards and Technology, Gaithersburg, MD.

72. Targeting and transport of drug delivery systems: mechanistic and applications. (Jun. 2018) Seminar series, Chemical & Biomolecular Engineering Department, University of Maryland, College Park, MD.
73. Receptor-targeted drug delivery: biological mechanistic and translational applications (Jun. 2018) Summer seminar series of the Johns Hopkins Institute for Nanobiotechnology (INBT), Baltimore, MD.
74. Optimizing transport of therapeutic nanomedicines across the blood-brain barrier (Jul. 2018) 2nd meeting on Innovations and State of the Art in Dementia Research (ISADR), Valencia, Spain. *Keynote speaker*
75. Controlled targeting and transport of drug delivery systems. (Sep. 2018) Workshop University of Technology of Eindhoven, Netherlands.
76. Drug carrier transport across the blood-brain barrier: an elusive parametric balance. (Oct. 2018) Annual Symposium of the Italian Chapter of the Controlled Release Society, Padua, Italy. *Closing speaker*
77. Nanoscale therapeutics and novel targets for drug delivery (Nov. 2018) Genetic, Rare and Immune Disorders Symposium (GRIDS), Fairfax, VA.
78. Parametric control of nanocarriers to optimize drug transport across the blood-brain barrier (Feb. 2019) 21st Mid-Atlantic Soft Matter Workshop, Shady Grove, MD.
79. Drug carrier transport across the vascular endothelium: an elusive parametric balance (Feb. 2019) Seminar Series of the Department of Pharmaceutical Sciences, University of Michigan, Ann Arbor, MI.
80. Enabling delivery of therapeutics across the blood-brain barrier for the treatment of neurodegenerative diseases. (Mar. 2019) Seminar Series of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
81. New routes to access the brain for therapeutic interventions. (Apr. 2019) Seminar series of the Catalan Association for Parkinson's disease, Barcelona, Spain.
82. New means to enable blood-to-brain access of lysosomal enzyme therapies (May 2019) Advances in Lysosomal Diseases. Special Seminars, Vall d'Hebron Hospital, Barcelona, Spain.
83. Transport across the blood-brain barrier and treatment of neurodegenerative diseases. (Jul. 2019) IBEC/ECMS Workshop, Barcelona Scientific Park, Barcelona, Spain.
84. Drug carrier transport across the blood-brain barrier and applications for neurological diseases. (Oct. 2019) Seminar Series of the Department of Pharmaceutical Sciences, University at Buffalo, Buffalo, NY,
85. New means to enable blood-to-brain access of lysosomal enzyme therapies (Nov. 2019) 9th European Symposium on Lysosomal Storage Disorders, Madrid, Spain.
86. Targeted drug delivery: fundamental aspects and translational applications (Jan. 2021) Seminar Series of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
87. Targeted therapeutics & nanodevices (Feb. 2021) Rare Diseases Symposium, Institute for Bioengineering of Catalonia & Vall d'Hebron Hospital, Barcelona, Spain.
88. Targeting across the blood-brain barrier: a tale with multiple endings. (Jul.2021) Annual Meeting of the Control Release Society, Virtual-remote. *The talk was invited but could not be delivered due to medical leave.*
89. Modulating design parameters of ICAM-1-targeted 3DNA nanocarriers to tune pulmonary targeting for drug delivery. (Sep. 2021) Pharmaceutical Research and Drug Development-PharmD, Virtual-remote. *The talk was invited but could not be delivered due to medical leave.*
90. Site-Specific Drug Delivery of Nanoscale Therapeutics to ICAM-1. (Nov. 2021) Seminar Series of the Department of Chemistry, University of Windsor, Windsor, Ontario, Canada.
91. New therapeutic strategies for the treatment of acid sphingomyelinase deficiency (Dec. 2021) Webinar organized by the Spanish Society for Acid Sphingomyelinase Deficiency (ASMD), Madrid (remote), Spain.
92. ICAM-1-mediated drug delivery: fundamental aspects and applications (Mar. 2023) Annual Retreat of the Bioengineering Undergraduate Program, University of Barcelona, Barcelona, Spain.
93. ICAM-1-mediated nano-biotechnology for drug delivery: fundamental aspects and applications (Mar. 2023) Seminar series of the Molecular Biotechnology Master Program, University of Barcelona, Barcelona, Spain.
94. Cellular transport and new enzyme replacement strategies (Sep. 2023) III Annual Conference of the Spanish Society for Acid Sphingomyelinase Deficiency (ASMD), Madrid, Spain.
95. ICAM-1 targeting in drug delivery: fundamental aspects and applications (Feb.024) Seminar series of the Molecular Biotechnology Master Program, University of Barcelona, Barcelona, Spain.

Contributed talks: (By Muro or her co-authors/mentees; All from refereed abstracts; * Marks corresponding authors; All with accompanying abstracts, not quantified in the "Abstracts and Conference Proceedings" section below)

1. Hoenicka J, **Muro S**, Rodríguez-Pombo P, Pérez-Cerdá C, Ugarte M*. (1997) Prevalence of the novel mutation A497V, in the PCCB gene, in Spanish propionic acidemia patients from a small village. 29th Annual Meeting of the European Society of Human Genetics. Genoa, Italy. Pg. 156 (P3.411).
2. Rodríguez-Pombo P, Hoenicka J, Richard E, **Muro S**, Desviat LR, Pérez B, Pérez-Cerdá C, Ugarte M*. (1997) Mutation spectrum of propionic acidemia in Spain. VII International Congress of Inborn Errors of Metabolism. Vienna, Austria. Pg. 82 (046).

3. **Muro S**, Pérez B, Rodríguez-Pombo P, Desviat LR, Pérez-Cerdá C, Ugarte M*. (2000) Characterization of structural and homomeric assembly defects in the PCCB gene causing propionic acidemia. VIII International Conference of the Society for the Study of Inborn Errors of Metabolism. Cambridge, UK. J Inher Metab Dis, 23(Suppl.1):92 (P184).
4. **Muro S**, Muzykantov VR*. (2001) Immunotargeting: a novel delivery system for endothelial gene and enzyme replacement therapy. Workshop in Molecular Biology, National Center for Biotechnology, Madrid, Spain.
5. Christofidou-Solomidou M, Kozower B, Sherpereel A, Sweitzer T, **Muro S**, Wiewrodt R, Shuvaev V, Thomas A, Koval M, Patterson A, Albelda S, Muzykantov V*. (2003) Targeting of antioxidants to adhesion molecules. 6th World Congress on Inflammation, Vancouver, Canada, August 2-6. Inflammation Research, 52, Suppl.2, p.S81 (IS/11)..
6. **Muro S**, Cui X, Gajewski CM, Koval M, Muzykantov VR*. (2003) Pharmacological modulation of intracellular trafficking and lysosomal degradation prolongs the anti-oxidant effect of catalase conjugates delivered into endothelial cells via ICAM-1. Controlled Release Society Winter Symposium. Salt Lake City. UT. (14).
7. **Muro S**, Muzykantov VR*. (2004) Intracellular delivery of targeted nanocarriers via CAM-mediated endocytosis. Pulmonary Allergy and Immunology Research, University of Pennsylvania, Philadelphia, PA.
8. **Muro S***, Schuchman E, Muzykantov V. (2004) Immunotargeting to ICAM-1 provides binding, internalization and lysosomal delivery of acid sphingomyelinase. 54th Annual Meeting American Society of Human Genetics. Toronto, ON, Canada. Am J Hum Genet, 75(Suppl):PN268.
9. Muzykantov V*, **Muro S**, Dziubla T, Shuvaev V. (2004) Endothelial adhesion molecules as therapeutic targets. Symposium of the Institute for Medical Engineering, Philadelphia, PA. Pg. 8.
10. **Muro S*,** Dhami R, Muzykantov V, Schuchman E. (2005) Nanocarriers targeted to clathrin-independent pathways for lysosomal enzyme replacement therapy. 6th Meeting of the Spanish Society for Inborn Errors of Metabolism, Palma de Mallorca, Spain. Pg.178 (CO-2A). *Best presentation award*
11. Dziubla T, Shuvaev V, **Muro S**, Muzykantov V*. (2005) The modular antibody targeting of catalase loaded nanocarriers provides protection of endothelial cells from H_2O_2 mediated injury. Annual AIChE Meeting. Cincinnati, OH. (102A).
12. Schuchman E*, Dhami R, **Muro S**, He X. (2006) Approaches for the treatment of lysosomal storage diseases. 10th International Congress of Inborn Errors of Metabolism, Tokyo, Japan. J Inherit Metab Dis., 29(Suppl 1):9.
13. Garnacho C, Dhami R, Schuchman E, Muzykantov V, **Muro S*.** (2006) In vivo intracellular and transcellular delivery of ICAM-1-targeted nanocarriers for enzyme replacement therapies of lysosomal disorders. VII Spanish-Portuguese Conference on Controlled Drug Delivery. Pamplona, Spain. Pg. 36.
14. Calderon A, **Muro S**, Muzykantov V, Eckmann D*. (2008) Hydrodynamics and affinity control of endothelial binding of carriers targeted to ICAM-1. Annual Meeting of the Biomedical Engineering Society, St Louis, MO. Pg. 68 (192).
15. Meng M, Garnacho C, **Muro S*.** (2008) Optimizing intracellular delivery of drug carriers by targeting receptors of vesicular transport. Annual Meeting of the Biomedical Engineering Society, St Louis, MO. Pg. 68 (191).
16. Bhowmick T, Papademetriou J, Garnacho C, **Muro S*.** (2009) Designing drug carriers with particular tissue distribution patterns by targeting cell surface receptors of different endocytic pathways. Annual Meeting of the BioMedical Engineering Society, Pittsburgh, PA. (33).
17. Serrano D, Garnacho C, Chadha R, **Muro S***. (2010) Membrane composition and acid sphingomyelinase in CAM-mediated endocytosis. Graduate Research Interaction Day. University of Maryland College Park, MD. *Best presentation award*
18. Northrup L, Hsu J, Bhowmick T, **Muro S*.** (2010) ICAM-1-targeted nanocarriers for treatment of Pompe disease. AIChE Mid-America, Iowa. *Third presentation award*
19. Ghaffarian R, Bhowmick T, **Muro S***. (2010) Transcellular transport of nanocarriers across gastrointestinal epithelial cells by targeting ICAM-1. Annual Meeting of the BioMedical Engineering Society. Austin, TX. OP-9-2-13-D.
20. Serrano D, Meng M, Garnacho C, Bhowmick T, Chadha R, **Muro S*.** (2010) A role for cell adhesion molecule-mediated endocytosis and sphingomyelin-ceramide pathway in transendothelial migration of leukocytes. 50th Annual Meeting of the American Society for Cell Biology. Philadelphia, PA. (27).
21. Hsu J, Bhowmick T, Garnacho C, **Muro S*.** (2011) Design of ICAM-1-targeting strategies for brain delivery of lysosomal therapies. World Organization for Research on Rare Disorders (WORLD) Symposium. Las Vegas, NV. Molec Genet Metab, 102(2):S31 (99).
22. Serrano D, Meng M, Chadha R, Garnacho C, **Muro S***. (2011) CAM-mediated endocytosis contributes to leukocyte transcellular transmigration. Experimental Biology Annual Meeting. Washington DC.
23. Serrano D, Garnacho C, **Muro S***. (2011) A fibrinogen-derived peptide for ICAM-1 specific targeting and intra-endothelial transport of polymer nanocarriers. Nanomedicine and Drug Delivery Symposium. Salt Lake City, UT. *Fourth presentation award*
24. Serrano D, Ansar M, Chadha R, Bhowmick T, **Muro S***. (2011) Efficient endothelial uptake of ICAM-1-targeted polymer carriers within a wide range of sizes is provided by the sphingomyelin/ceramide pathway at membrane lipid raft-like domains. 38th Annual Meeting & Exposition of the Controlled Release Society. National Harbor, MD. (42).
25. Hsu J, Serrano D, Bhowmick T, **Muro S*.** (2011) Enhanced in vivo delivery of three distinct therapeutic enzymes for lysosomal storage disorders by ICAM-1-targeted nanocarriers. 38th Annual Meeting & Exposition of the Controlled Release Society. National Harbor, MD. (149).

26. Serrano D, **Muro S***. (2011) CAM-mediated endocytosis, acid sphingomyelinase, and leukocyte transmigration. Annual Retreat of the Department of Molecular and Cellular Biology, University of Maryland College Park, MD. *Best presentation award*
27. Mane V, Ghaffarian R, Bhowmick T, **Muro S*.** (2011) Biodistribution of ICAM-1-targeting nanocarriers in the gastrointestinal tract in mice. 38th Annual Meeting & Exposition of the Controlled Release Society. National Harbor, MD. (195).
28. Bhowmick T, Hsu J, Dhami R, Burks S, Kao J, Schuchman E, **Muro S*.** (2011) ICAM-1-targeted nanocarriers provide efficient targeting, transport across the BBB and effects of therapeutic enzymes in the brain. 38th Annual Meeting & Exposition of the Controlled Release Society. National Harbor, MD. (136) *Outstanding Consumer & Diversified Products Best Paper award.*
29. Ghaffarian R, Bhowmick T, **Muro S***. (2012) Transport of α-galactosidase coupled to ICAM-1-targeted nanocarriers across gastrointestinal epithelial cells. World Organization for Research on Rare Disorders (WORLD) Symposium. San Diego, CA.
30. Hsu J, Bhowmick T, **Muro S***. (2012) Enhanced kidney and heart delivery of α-galactosidase by modulating enzyme load and carrier bulk-concentration of ICAM-1-targeted nanocarriers. World Organization for Research on Rare Disorders (WORLD) Symposium. San Diego, CA. *Travel award*
31. Mane V, **Muro S***. (2012) ICAM-1-mediated targeting and endocytosis in the gastrointestinal tract in mice. Annual Meeting of the United Kingdom and Ireland Controlled Release Society. Birmingham, UK.
32. Ghaffarian R, **Muro S***. (2012). Oral delivery of biological therapeutics. Bioscience Research and Technology Review Day, University of Maryland. College Park, MD.
33. Hsu J, Bhowmick T, **Muro S***. (2012) Enhanced kidney and heart delivery of alpha-galactosidase by modulating enzyme load and carrier bulk-concentration of ICAM-1-targeted nanocarriers. James Clark School of Engineering Research Festival. University of Maryland, College Park, MD. *Runner up presentation award.*
34. Rappaport J, Hsu J, **Muro S***. (2013) Characterizing the uptake of targeted nanocarriers for drug delivery across the blood brain barrier. Society of Biological Engineers Undergraduate Bioengineering Research Day, Johns Hopkins University, Baltimore, MD. *Third presentation award***.**
35. Manthe R, **Muro S***. (2013) ICAM-1-targeted nanocarriers attenuate endothelial release of inflammatory mediators. Engineering Research Festival. University of Maryland College Park, MD.
36. Hsu J, Rappaport J, **Muro S***. (2013) Interaction of ICAM-1-targeted polymer nanocarriers with different brain cell types in culture. Engineering Research Festival. University of Maryland College Park, MD. *Best presentation award.*
37. Ghaffarian R, **Muro S***. (Mar. 2013). Targeting therapeutics with subcellular precision. Bioengineering Graduate Student Society Research and Pizza (RAP) Seminar. University of Maryland, College Park, MD.
38. Manthe R, **Muro S***. (2014) Investigating the role of matrix metalloproteinases in mediating ICAM-1-targeted nanocarrier transport through endothelial barriers. Bioengineering Graduate Student Society Research and Pizza (RAP) Seminar, University of Maryland, College Park, MD.
39. Hsu J, Rappaport J, **Muro S***. (2014) Transport of ICAM-1-targeted nanocarriers across endothelial-subendothelial layers and uptake by neurons. Annual Meeting of the American Society of Nanomedicine. *Best Presentation and Young Investigator Award.*
40. Manthe R, **Muro S***. (2014) A mechanism of abluminal release of receptor-bound nanocarriers after transcytosis. Graduate Research Interaction Day, University of Maryland, College Paek, MD. *Best presentation award.*
41. **Muro S***. (2014) Nucleodendrimers for endosomal escape. Annual Meeting and Exposition of the Controlled Release Society. Chicago, IL.
42. Ansar M, Serrano D, Papademetriou I, Bhowmick T, **Muro S***. (2014) Strategy to bypass natural size restrictions of receptor-mediated endocytosis of drug carriers. Annual Meeting and Exposition of the Controlled Release Society. Chicago, IL.
43. Manthe R, **Muro S***. (2014) Mechanism of nanocarrier release from the abluminal endothelial surface. Annual Meeting and Exposition of the Controlled Release Society. Chicago, IL.
44. Ghaffarian R, **Muro S***. (2015) Encapsulation of ICAM-1-targeted nanocarriers for oral delivery of lysosomal enzymes. Graduate Research Interaction Day, University of Maryland, College Paek, MD. *Best presentation award.*
45. Ghaffarian R, Oh H, Abouzeid A, Vreeland W, Raghavan S, **Muro S***. (2016) ICAM-1 targeting by direct conjugation enhances gastrointestinal transcytosis and encapsulation enables gastric protection and controlled released for oral enzyme delivery. Annual Meeting of the World Organization for the Rare Lysosomal Disorders, San Diego, CA.
46. Manthe R, Schuchman E, **Muro S***. (2016). Enhanced lysosomal enzyme delivery across the blood-brain barrier by modulating the valency of ICAM-1-targeted nanocarriers. Annual Meeting of the World Organization for the Rare Lysosomal Disorders, San Diego, CA.
47. Ghaffarian R, Hyuntaek O, Abouzeid A, Vreeland W, Raghavan S, **Muro S***. (2016) ICAM-1 targeting by direct conjugation enhances gastrointestinal transcytosis and encapsulation enables gastric protection and controlled release of oral enzyme delivery. Annual Meeting of the World Organization for Rare Lysosomal Disorders, San Diego, CA.

48. Kim J, Sinha D, Hsu J, **Muro S***. (2016) A strategy to avoid phagocytosis of drug nanocarriers by macrophages without affecting receptor-mediated endocytosis by specifically targeted cells. Johns Hopkins & University of Maryland Biomedical Engineering Undergraduate Research Day. *Second presentation award*
49. Solomon MA, Moscoso R, Bautista R, **Muro S*.** (2017) Transcytosis alterations in lysosomal storage diseases. Annual Meeting of the World Organization for Rare Lysosomal Disorders, San Diego, CA.
50. Manthe R, Rappaport J, Solomon M, Gugutkov D, Hildreth M, Velovolu V, Long Y, Marugan J, Zheng W, **Muro S***. (2019) δ-Tocopherol Effect on Endocytosis and its Combination with Enzyme Replacement Therapy for Lysosomal Disorders: a New Type of Drug Interaction? Annual Meeting and Exposition of the Controlled Release Society, Valencia, Spain.
51. Roki N, Solomon M, Bowers J, Getts R, **Muro S***. (2019) In vivo biodistribution and bio-physicochemical properties of anti-ICAM/3DNA: DNA-based drug nanocarriers intravenously targeted to lungs via antibodies against ICAM-1 endothelial receptor. MADNano: Mid-Atlantic DNA Nanotechnology Symposium, National Institute of Standards and Technology, Gaithersburg, MD.
52. Loeck M, Manthe R, Bhowmick T, Solomon M, **Muro S*.** (2020) Role of valency on the ability of ICAM-1 targeted nanoparticles to effectively cross the BBB and deliver therapeutic enzymes in cellular and animal models. Annual Symposium of the Institute for Bioengineering of Catalonia, Online meeting.
53. Marcos-Contreras O, Glassman P, Nong J, Walsh L, Rodriguez-Garcia A, Myerson J, Zuluaga-Ramirez V, Greineder C, Hood E, Kiseleva R, Reyes-Esteves S, **Muro S**, Kasner S, Persidsky Y Brenner J, Muzykantov V. Direct targeting of migrating white blood cells to restore blood-brain barrier homeostasis. (2021) Annual Meeting of the Controlled Release Society, Virtual-remote.
54. Pons R, Gutierrez E, Loeck M, Campelo, Muro S, Garcia-Parajo M. Assessing how glucocerebrosidase defects alter receptor membrane nanoarchitecture to design improved nanomedicines. (2022) XXXVII Trobades Científiques de la Mediterrània, Menorca.

Abstracts and Conference Proceedings Presented as Posters: (* Marks corresponding authors)

1. Pérez-Cerdá C, Rodríguez-Pombo P, Desviat LR, Hoenicka J, Pérez B, **Muro S**, Ugarte M*. (1997) Molecular analysis of propionic acidemia in Spain. 34th Annual Conference of the Society for the Study of Inborn Errors of Metabolism. Cardiff, UK. J Inher Metab Dis; 20(Suppl. 1):43 (P85).
2. Rodríguez-Pombo P, Pérez-Cerdá C, Hoenicka J, Desviat LR, Pérez B, **Muro S**, Richard E, Cornejo V, Giuliani R, Wajner M, Ugarte M*. (1996) First report on mutation analysis of propionic acidemia in Latin America. 46th Annual Meeting of the American Society of Human Genetics. San Francisco, CA. Am J Hum Genet. 59(Suppl. 4):A375 (P2190).
3. Pérez-Cerdá C, Rodríguez-Pombo P, Desviat LR, Hoenicka J, Pérez B, Richard E, **Muro S**, Ugarte M*. (1996) Molecular Bases of Propionic Acidemia in Spain. I National Meeting of Inborn Errors of Metabolism. Zaragoza, Spain. Pg. 68 (C13).
4. **Muro S**, Pérez-Cerdá C, Rodríguez-Pombo P, Pérez B, Briones P, Ribes A, Ugarte M*. (1998) Feasibility of mutation analysis for prenatal diagnosis of propionic academia. II National Meeting, Inborn Errors of Metabolism. Barcelona, Spain. (P28). *Best presentation award*
5. Pérez-Cerdá C, Merinero B, Rodríguez-Pombo P, Pérez B, Desviat LR, **Muro S**, Richard E, García MJ, Briones P, Ribes A, Ugarte M*. (1999) Investigation of potential phenotype/genotype correlation in propionic acidemia. 37th Annual Symposium of the Society for the Study of Inborn Errors of Metabolism. Genoa, Italy. J Inher Metab Dis, 22(Suppl.1):89 (P105).
6. **Muro S**, Pérez B, Rodríguez-Pombo P, Desviat LR, Pérez-Cerdá C, Ugarte M*. (1999) Identification of mutations affecting the β-β homomeric interaction in propionic acidemia: an approach towards the determination of β-PCC functional domains. 37th Annual Symposium of the Society for the Study of Inborn Errors of Metabolism. Genoa, Italy. J Inher Metab Dis, 22(Suppl.1):90 (P106). *Best presentation award*
7. Rodríguez-Pombo P, **Muro S**, Pérez B, Pérez-Cerdá C, Desviat LR, Skladal D, Sass JO, Sperl W, Suormala T, Baumgartner R, Ugarte M*. (1999) Propionic acidemia: utilization of a cryptic acceptor site resulting from a novel splicing mutation in the PCCB gene. 37th Annual Symposium of the Society for the Study of Inborn Errors of Metabolism. Genoa, Italy J Inher Metab Dis, 22(Suppl.1):95 (A39).
8. **Muro S**, Pérez B, Rodríguez-Pombo P, Desviat LR, Pérez-Cerdá C, Ugarte M*. (1999) Identification of mutations causing propionic academia affecting β-β homomeric interaction. XXII National Meeting of the Spanish Society of Biochemistry and Molecular Biology. Pamplona, Spain. Pg. 100 (P312).
9. Rodríguez-Pombo P, Pérez B, **Muro S**, Pérez-Cerdá C, Desviat LR, Gibson KM, Ugarte M*. (2000) New mutations detected in USA propionic acidemia families. VIII International Conference of the Society for the Study of Inborn Errors of Metabolism. Cambridge, UK. J Inher Metab Dis, 23(Suppl.1):92 (P183).
10. **Muro S**, Pérez B, Desviat LR, Rodríguez-Pombo P, Pérez-Cerdá C, Ugarte M*. (2001) Effect of PCCB gene mutations on the heteromeric and homomeric assembly of propionyl-CoA-carboxylase. 51st Annual Meeting of the American Society of Human Genetics. San Francisco, CA. Am J Hum Genet, 69(4 Suppl.):1747S.

11. **Muro S**, Wiewrodt R, Thomas A, Albelda SM, Koniaris L, Muzykantov VR, Koval M*. (2001) Intracellular uptake and trafficking of immunoconjugates targeted to endothelial surface adhesion molecules. 41st Meeting of the American Society for Cell Biology. Washington, DC. Molecular Biol Cell, 12(Suppl.):A493.
12. **Muro S**, Thomas A, Wiewrodt R, Koniaris L, Albelda S, Muzykantov VR, Koval M*. (2001) Intracellular immunotargeting to endothelial cells via surface adhesion molecules. 7th Annual Respiration Research Retreat. Philadelphia, PA. (31).
13. **Muro S**, Thomas A, Muzykantov VR, Koval M*. (2002) PKC-mediated endocytosis of conjugates targeted to ICAM-1. Meeting on Experimental Biology, New Orleans, LA. FASEB J., 2002, 16(4):A439 (382.12).
14. **Muro S**, Koval M, Thomas A, Muzykantov VR*. (2002) Affinity carriers targeted to intercellular adhesion molecule-1 (ICAM-1): trafficking into endothelial cells. 98th International Conference of the American Thoracic Society, Atlanta, GA. A101.
15. Ganguli K, Murciano JC, Medinilla S, **Muro S**, Goel M, Diamond S, Cines D, Muzykantov VR*. (2002). Binding of the erythrocytes carrying plasminogen activators to components of clot and vascular wall. 8th Annual Respiration Research Retreat. Philadelphia, PA. (32).
16. Thomas A, **Muro S**, Sweitzer TD, Shuvaev VS, Wiewrodt R, Muzykantov VR*. (2002) Size-dependent intracellular targeting of the immunoconjugates directed against endothelial surface adhesion molecules. 8th Annual Respiration Research Retreat. Philadelphia, PA. (31).
17. **Muro S**, Thomas A, Wiewrodt R, Koniaris L, Albelda S, Muzykantov VR, Koval M*. (2002) Intracellular drug delivery to endothelium: induction of a non-classical endocytic pathway by clustering surface adhesion molecules. 8th Annual Respiration Research Retreat. Philadelphia, PA. (33).
18. Robinson MA, **Muro S**, Manevich Y, Muzykantov VR*. (2002) Calcium involvement in adherent endothelial cells during internalization of anti-ICAM-1 immunoconjugates. Penn Pharmacology Department Graduate Student Meeting. Philadelphia, PA. (34).
19. Thomas A, Sweitzer TD, Wiewrodt R, **Muro S**, Koval MH, Muzykantov VR*. (2002) Size-dependent intracellular targeting of the immunoconjugates directed against endothelial surface adhesion molecules. XIV World Congress of Pharmacology, San Francisco, CA. Pharmacologist, 2002, 44(2) Suppl.1:61.2.
20. **Muro S**, Sweitzer TD, Wiewrodt R, Koniaris L, Thomas A, Albelda S, Koval M, Muzykantov VR*. (2002) Kinetics of intracellular immunotargeting to endothelium via adhesion molecules. XIV World Congress of Pharmacology, San Francisco, CA. Pharmacologist, 2002, 44(2) Suppl.1:61.3.
21. Sweitzer T, **Muro S**, Shuvaev V, Wiewrodt R, Thomas A, Berk E, Koval M, Muzykantov V*. (2003) Kinetics of endothelial uptake and protective effect of catalase conjugated to PECAM-1 antibodies. 99th International Conference of the American Thoracic Society. Seattle, WA. Am J Resp Crit Care Med, 167:A129.
22. Christofidou Solomidou M, **Muro S**, Murciano J, Barry M, Thomas A, Shuvaev V, Albelda S, Cines D, Muzykantov V*. (2003) Targeting endothelial cell adhesion molecules. Symposium of Vector Targeting, Cold Spring Harbor, NY, March 20-22, 2003, pg 19.
23. Berk E, Muzykantov V, **Muro S*.** (2003) Binding and uptake of anti-ICAM-1 coated nanoparticles by flow adapted endothelial cells. 9th Annual Respiration Research Retreat. Philadelphia. PA. (9).
24. **Muro S**, Gajewski C, Koval M, Muzykantov V*. (2003) Slow intracellular degradation of ICAM-1 or PECAM-1 targeted catalase nanoparticles protects endothelial cells from oxidative stress. 9th Annual Respiration Research Retreat. Philadelphia, PA. (49).
25. **Muro S**, Murciano JC, Christofidou M, Muzykantov V*. (2004) Targeting of drugs to cell adhesion molecules for treatment of acute lung injury. DoD PRMRP Military Health Research Forum, San Juan, Puerto Rico, 25-28 April, 2004, Pg. 16.
26. **Muro S**, Gajewski C, Koval M, Muzykantov V*. (2004) Sustained drug delivery into endothelium via recycling ICAM-1. International Symposium on Molecular Design in Drug Development and Discovery, Toronto, ON, Canada. (9).
27. **Muro S**, Muzykantov V* (2004) Sustained drug delivery into endothelium via ICAM-1. American Heart Association, Grover Conference on Pulmonary Circulation, Lost Valley Ranch, CO. (12).
28. **Muro S**, Gajewski C, Koval M, Muzykantov V*. (2004) Sustained endothelial delivery of catalase via ICAM-1 recycling pathway. 10th Annual Respiration Research Retreat. Philadelphia. PA. (33).
29. Gajewski C, **Muro S**, Koval M, Muzykantov V*. (2004) Sustained drug delivery of catalase via ICAM-1 recycling pathway. 21st Annual Pharmacological Sciences Student Symposium, Philadelphia. PA. Pg. 18.
30. Qiu W, **Muro S**, Dziubla T, Muzykantov V*. (2004) Characterization of surface-absorbed antibody particle binding to the endothelium. Symposium of the Institute for Medical Engineering, Philadelphia., PA. (A70).
31. **Muro S**, Mateescu M, Muzykantov V, Koval M*. (2005) Regulation of anti-ICAM-1 nanocarrier endocytosis and sorting by endothelial cell Na^+/H^+ Exchanger proteins. XXXV International Conference of Physiological Sciences - Experimental Biology. San Diego, CA. FASEB J 19(4, Suppl.): A773 (396.5).
32. **Muro S**, Dziubla T, Qiu W, Leferovich J, Cui X, Berk E, Muzykantov V*. (2005) ICAM-1-targeted nanocarriers directed to endothelial cells. 3rd International Nanomedicine and Drug Delivery Symposium. Baltimore, MD. Pg.94.

33. **Muro S*,** Dhami R, Leferovich J, Muzykantov V, Schuchman E. (2005) ICAM-1 targeting enhances delivery of active acid sphingomyelinase in mice. 55th Annual Meeting of the American Society of Human Genetics. Salt Lake City, UT. Am J Hum Genet, 77(Sppl.):2507/W.
34. Thomas A, Garnacho C, **Muro S**, Albelda S, Koval M, Muzykantov V*. (2005) PECAM-1 cytosolic domain regulates endocytosis and actin reorganization triggered by PECAM-1 clustering. 45th Annual Meeting of the American Society of Cell Biology. San Francisco, CA. Pg. 97 (1101).
35. Thomas A, Shuvaev V, Garnacho C, Albelda S, Muzykantov V, Koval M, **Muro S*.** (2005) Intramolecular signaling involved in internalization of anti-PECAM/beads by endothelial-like cells. 11th Annual Respiration Research Retreat, Philadelphia, PA. Pag. 29 (57).
36. **Muro S***, Gajewski C, Leferovich J, Schuchman E, Muzykantov V. (2005) Targeted enzyme replacement therapy for type B Niemann-Pick disease by anti-ICAM nanocarriers. 11th Annual Respiration Research Retreat, Philadelphia, PA. Pg. 23 (46).
37. Qiu W, **Muro S**, Dziubla T, Muzykantov V*. (2005) Size regulates binding of CAM targeted nanocarriers to endothelial cells. 11th Annual Respiration Research Retreat, Philadelphia, PA. Pg. 14 (27).
38. Dziubla T, Shuvaev V, Tliba S, **Muro S**, Muzykantov V*. (2005) The modular docking of antibodies onto catalase loaded degradable stealth nanocarriers provides targeting and protection of endothelial cells from H_2O_2. 11th Annual Respiration Research Retreat, Philadelphia, PA. Pg. 15 (30).
39. Gajewski C, Leferovich J, Koval M, Muzykantov V, **Muro S*.** (2005) Prolonged antioxidant protection of endothelial cells by catalase nanoparticles targeted to ICAM-1. 11th Annual Respiration Research Retreat, Philadelphia, PA. Pg. 16 (31).
40. Garnacho C, **Muro S**, Thomas A, Koval M, Albeada S, Muzykantov V*. (2005) Role of PECAM-1 cytosolic domain in endothelial endocytosis and actin reorganization. IV Annual Postdoctoral Research Symposium. University of Pennsylvania Medical School. Pag. 29. *Third presentation award*
41. **Muro S***, Muzykantov V, Schuchman E. (2005) Defective endocytic pathways in lipid storage disorders. 45th Annual Meeting of the American Society of Cell Biology. San Francisco, CA. Pg. 108 (1432).
42. Dziubla T, Shuvaev V, Simone E, **Muro S**, Muzykantov V*. (2006) Enzyme loaded Polymer Nanocarriers Function as Cellular "Detoxosomes". 33rd Annual Meeting, Controlled Release Society. Vienna, Austria. (431).
43. Garnacho C, **Muro S**, Albelda S, Muzykantov V*. (2006) Targeting distinct extracellular epitopes of cell adhesion molecules provides differential sub-cellular delivery of nanocarriers. 4th Nanomedicine and Drug Delivery Symposium. Omaha, NE. Pg. 93 (18).
44. **Muro S***, Champion J, Gajewski C, Leferovich J, Garnacho C, Mitragotri S, Muzykantov V. (2006) Control of the sub-cellular delivery and fate of ICAM-1-targeted nanocarriers by modulating particle size and shape. 4th Nanomedicine and Drug Delivery Symposium. Omaha, NE. Pg. 121 (46).
45. Dhami R, Garnacho C, Dziubla T, Leferovich J, Schuchman E, Muzykantov V, **Muro S***. (2006) Targeted nanocarriers as delivery vehicles for enzyme replacement therapies of genetic deficiencies. 4th Nanomedicine and Drug Delivery Symposium. Omaha, NE. Pg. 120 (45).
46. Garnacho C, Dhami R, Muzykantov V, Schuchman E, **Muro S*.** (2006) Accumulation of cholesterol impairs endocytosis in fibroblasts from patients with genetic lysosomal lipid storage disorders. 46th Annual Meeting of the American Society of Cell Biology. San Diego, CA. Pg. 67 (673).
47. Stover T, Christofidou-Solomidou M, Muzykantov V, **Muro S*.** (2006) ICAM-1-Targeted Nanocarriers Traverse Across Endothelial Monolayers: Implications for Targeted Drug Delivery. 12th Annual Respiration Research Retreat. Philadelphia, PA. Pg. 10 (7).
48. Garnacho C, **Muro S**, Albelda S, Muzykantov V*. (2006) Differential Sub-cellular Delivery of Nanocarriers Immunotargeted to Distinct Extracellular PECAM-1 Epitopes. 12th Annual Respiration Research Retreat. Philadelphia, PA. Pg. 12 (11).
49. **Muro S***, Dziubla T, Dhami R, Garnacho C, Qiu W, Leferovich J, Berk E, Schuchman E, Muzykantov V. (2006) Niemann-Pick B enzyme delivery to the pulmonary vasculature using nanocarriers with high endothelial affinity. 12th Annual Respiration Research Retreat. Philadelphia, PA. Pg. 9 (6).
50. **Muro S**, Tsourkas A, Hovsepian A, Muzykantov V, Gohel D, Doyle GV*. (2006) Use of a novel immunomagnetic MRI contrast agent to image activated vascular endothelium. Targeted Therapeutics Retreat, Philadelphia, PA. Pg. 21 (18).
51. **Muro S***, Muzykantov V. (2006) Targeting therapeutics to the endothelial cell adhesion molecule ICAM-1. Targeted Therapeutics Retreat, Philadelphia, PA. Pg. 20 (17).
52. Calderon A, **Muro S**, Muzykantov V, Eckmann D*. (2007) Parameters governing affinity of ICAM-1-targeted nanocarriers to endothelium. Annual Meeting of the Biomedical Engineering Society. Los Angeles. CA.
53. Rossin R, Zhou Z, **Muro S**, Kozlowski J, Welch MJ, Muzykantov V, Schuster D*. (2007) PET imaging of lung endothelium with ^{64}Cu-labeled ICAM-1 targeted nanoparticles. Annual Meeting of the Society of Radiopharmaceutical Sciences. Aachen, Germany.

54. Schuchman E*, Dhami R, **Muro S**. (2007) The pathogenesis and treatment of acid sphingomyelinase-deficient Niemann-Pick disease. World Organization for Research on Rare Lysosomal Disorders (WORLD) Symposium. Mol Genet Metab, 92(4, Suppl):S23 (51).
55. Garnacho C, Dhami R, Muzykantov V, Schuchman E, **Muro S*.** (2007) Endothelium-targeted enzyme replacement therapy for Niemann-Pick lysosomal storage disease. Annual Research Symposium of the American Heart Association. Orlando, FL. (120).
56. Garnacho C, Leferovich J, Gajewski C, Muzykantov V, **Muro S*.** (2007) Regulatory role of ligand geometry in classical and non-classical endocytosis in endothelial cells. Annual Meeting of the American Society of Cell Biology. Washington, DC. Pg. 64 (299).
57. Garnacho C, Schuchman E, **Muro S*.** (2007) Optimization of ICAM-1-targeted lysosomal enzyme replacement therapy for Niemann-Pick disease by modulating polymer carrier size. 5th Nanomedicine and Drug Delivery Symposium. Boston, MA. Pg. 16 (19). *Third presentation award*
58. Meng M, **Muro S*.** (2007) Phage-display derived ICAM-1-affinity peptides for drug delivery to endothelium. 5th Nanomedicine and Drug Delivery Symposium. Boston, MA. Pg. 17 (41).
59. **Muro S*,** Garnacho C, Champion J, Leferovich J, Gajewski C, Schuchman E, Mitragotri S, Muzykantov V. (2007) Geometry of ICAM-1-targeted drug delivery vehicles as a design parameter for controlled sub-cellular delivery and effects of drugs in endothelium. 13th Annual Respiration Research Retreat. Philadelphia, PA. Pg. 34 (45).
60. Meng M, Dhami R, Garnacho C, Muzykantov, Schuchman E, **Muro S*.** (2007) Identification of ICAM-1 affinity peptides from a phage display library to provide endothelial targeting for Niemann-Pick enzyme replacement therapy. 13th Annual Respiration Research Retreat. Philadelphia, PA. Pg. 35 (46).
61. Garnacho C, Stover T, Dhami R, Schuchman E, Muzykantov V, **Muro S*.** (2007) Enhanced Niemann-Pick enzyme delivery by targeting endothelial ICAM-1 versus determinants associated to classical endocytic pathways. 13th Annual Respiration Research Retreat. Philadelphia, PA. Pg. 35 (47).
62. **Muro S*.** (2008) Control of subcellular delivery of targeted polymer therapeutics by endothelial vesicular transport. 7th International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice. Centro de Investigación Príncipe Felipe, Valencia, Spain. Pg. 9
63. Calderon A, **Muro S**, Muzykantov V, Eckmann D*. (2008) Optimizing targeted nanocarrier binding to endothelial cells for drug delivery. Annual Meeting of the Association of University Anesthesiologists, Durham, NC.
64. Muzykantov V, Mitragotri S, **Muro S*.** (2008) Role of carrier geometry in the intracellular delivery and effects of targeted drug carriers. Annual Meeting of the Biomedical Engineering Society, St Louis, MO. Pg. 64 (169).
65. Garnacho C, Dhami R, Schuchman E, **Muro S*.** (2008) Brain targeting of lysosomal enzymes by ICAM-1-targeted polymer nanocarriers. 6th Nanomedicine and Drug Delivery Symposium. Toronto, ON, Canada. (2).
66. Garnacho C, Meng M, **Muro S*.** (2008) Real-time imaging of endocytosis in vascular endothelium in mice using fluorescent receptor-targeted nanoparticles and fluid-phase markers. Annual Meeting of the American Society of Cell Biology. San Francisco, CA. 484/B433.
67. Hsu J, Serrano D, Garnacho C, **Muro S*.** (2008) Intra-endothelial delivery of ICAM-1-targeted nanocarriers for enzyme replacement therapy of Fabry disease. Bioscience Day, University of Maryland, College Park, MD.
68. Serrano D, Hsu J, Kumar K, Garnacho C, **Muro S*.** (2009) Endothelial targeted enzyme replacement therapy for Fabry disease. 36th Annual Meeting of the Controlled Release Society, Copenhagen, Denmark. (907).
69. Muzykantov V*, Muro S. (2009) Targeted delivery of drugs in the vascular system. Conference of Interdisciplinary Transport Phenomena VI: Fluid, Thermal, Biological, Materials and Space Sciences. Volterra, Italy. ITP-09-31.
70. Calderon A, Baig M, Pichett B, Muzykantov V, **Muro S**, Eckmann D*. (2009) Effect of glycocalyx on drug delivery carriers targeted to endothelial cells. Conference of Interdisciplinary Transport Phenomena VI: Fluid, Thermal, Biological, Materials and Space Sciences. Volterra, Italy. ITP-09-20.
71. Meng M, Garnacho C, **Muro S*.** (2009) Enhanced delivery of lysosomal enzyme replacement therapies by targeting ICAM-1 versus receptors of clathrin and caveolar endocytic pathways. 58th Annual Meeting of the American Society of Human Genetics. Honolulu, HI. 3166F/1098.
72. Garnacho C, Dhami R, Schuchman E, **Muro S*.** (2009) Brain delivery of recombinant acid sphingomyelinase by ICAM-1-targeted nanocarriers. 58th Annual Meeting of the American Society of Human Genetics. Honolulu, HI. 3164F/1096.
73. Hsu J, Serrano D, Garnacho C, **Muro S*.** (2009) Improved delivery of alpha-galactosidase to Fabry disease endothelial cells by ICAM-1-targeted nanocarriers. 58th Annual Meeting of the American Society of Human Genetics. Honolulu, HI. 3165F/1097.
74. Northrup L, Hsu J, Bhowmick T, **Muro S*.** (2009) Receptor-targeted nanoparticles for enzyme replacement therapy of genetic Pompe disease. Inaugural Conference of the American Society for Nanomedicine. Potomac, MD. (P13).
75. Serrano D, Bhowmick T, Garnacho C, Muzykantov V, **Muro S*.** (2009) Endocytosis mediated by ICAM-1 occurs in cholesterol-, sphingomyelin- and cholera toxin-positive domains but is independent of caveoli. 49th Annual Meeting of the American Society for Cell Biology. San Diego, CA. 2261/B638.

76. Hsu J, Serrano D, Kumar K, Garnacho C, Shen Y, Kuo YC, **Muro S***. (2009) Targeted nanocarriers for enzyme replacement therapy of Fabry disease. Fischell Festival, organized by the Department of Bioengineering, University of Maryland, College Park, MD.
77. Northrup L, Hsu J, Bhowmick T, **Muro S*.** (2009) Receptor-targeted nanoparticles for enzyme replacement therapy of genetic Pompe disease. Bioscience Day, University of Maryland College Park, MD. *Best presentation award*
78. Serrano D, Garnacho C, Chadha R, **Muro S*.** (2010) Acid sphingomyelinase and membrane composition in CAM-mediated endocytosis. Scientific Sessions of the American Heart Association. San Francisco, CA. Arterioscler Thromb Vasc Biol, 30(11):E255 (P388).
79. Bhowmick T, Hsu J, Garnacho C, Burks S, Kao J, **Muro S*.** (2010) Targeting and Distribution of ICAM-1 Targeted Polymer Carriers in the Brain. 8th Nanomedicine and Drug Delivery Symposium. Omaha, NE. (81).
80. Ghaffarian R, Bhowmick T, **Muro S*.** (2010) ICAM-1 targeted nanocarriers as a strategy for drug delivery across the intestinal epithelium. Bioscience Day, University of Maryland, College Park, MD
81. Serrano D, Meng M, Garnacho C, Bhowmick T, Chadha R, **Muro S*.** (2010) A role for sphingomyelin/ceramide signaling in regulating leukocyte transendothelial migration via the CAM-mediated pathway. Bioscience Day, University of Maryland, College Park. *Second presentation award*
82. Wu H-C, Tsao C-Y, Valdes J, Payne G, **Muro S**, Bentley W. (2011) Toward a bacteria dirigible - autonomous localization and actuation. 241th National Meeting of the American Chemical Society, Anaheim, CA.
83. Ghaffarian R, Ayyub O, Kofinas P, **Muro S*.** (2011) Targeting to ICAM-1 induces transport of polymer carriers across gastrointestinal epithelial cells. 38th Annual Meeting & Exposition of the Controlled Release Society. National Harbor, MD. (758).
84. Bacalocostantis I, Kang M, Goodley A, **Muro S**, Kofinas P*. (2011) Synthesis and characterization of pH sensitive disulfide cross-linked polymer vector for the delivery of genes to MCF-7 breast cancer cells. Annual Meeting of the BioMedical Society. Hartford, CT.
85. Ghaffarian R, Bagal A, Raghavan S, **Muro S*.** (2011) pH-sensitive hydrogels for encapsulation and controlled release of antibody-coated nanocarriers for oral drug delivery. Annual Meeting of the BioMedical Society. Hartford, CT.
86. Ghaffarian R, Bhowmick T, **Muro S***. (2011) Transport of ICAM-1-targeted nanocarriers qcross gastrointestinal epithelial cells occurs via the transcellular, not paracellular, route. Annual Meeting of the American Society for Nanomedicine. *Best Poster Presentation and Young Investigator Award.*
87. Garnacho C, Serrano D, **Muro S***. (2011) A fibrinogen-derived peptide for ICAM-1-specific targeting and intra-endothelial transport of polymer nanocarriers. International Nanomedicine and Drug Delivery Symposium, Salt-Lake City, UT.
88. Bhowmick T, Hsu J, **Muro S*.** (2011) Transport across the blood brain barrier by ICAM-1-targeted nanocarriers. University of Maryland – NCI workshop, College Park, MD.
89. Ghaffarian R, **Muro S*.** (2011) Transport of drug delivery carriers across the gastrointestinal epithelium by targeting ICAM-1. University of Maryland – NCI workshop, College Park, MD.
90. Hsu J, Bhowmick T, **Muro S*.** (2011) Enhanced delivery of therapeutic enzymes into the brain by targeting ICAM-1. Graduate Research Interaction Day. University of Maryland, College Park, MD. *Best presentation award*
91. Ansar M, Serrano D, **Muro S***. (2011) Sphingomyelinase facilitates endocytosis of micrometer-sized objects, such as drug carriers. Bioscience Day, University of Maryland, College Park, MD.
92. Serrano D, Garnacho C, **Muro S***. (2011). New vascular ligand-inspired peptide for endothelial targeting and intra-endothelial delivery of drug nanocarriers. Bioscience Day, University of Maryland, College Park, MD.
93. Serrano D, Garnacho C, **Muro S***. (2012) A fibrinogen-derived peptide induces clathrin- and caveolae-independent endocytosis in endothelial cells. Annual Meeting of Experimental Biology, San Diego, CA.
94. Ghaffarian R, Bhowmick T, **Muro S***. (2012) A novel mechanism of transcytosis of drug carriers across gastrointestinal epithelial cells mediated by ICAM-1. Annual Meeting of Experimental Biology, San Diego, CA.
95. Ghaffarian R, **Muro S***. (2012) Effect of valency on the sub-cellular transport induced by ICAM-1-targeting. International Nanomedicine and Drug Delivery Symposium. Atlantic City, NJ.
96. Papademetriou J, Garnacho C, **Muro S***. (2012) In vivo performance of nanocarriers dually-targeted to epitopes of the aame versus different receptors. Annual Meeting & Exposition of the Controlled Release Society. Québec city, Canada.
97. Mane V, Ghaffarian R, **Muro S***. (2012) ICAM-1-targeted nanocarriers are endocytosed in the gastrointestinal tract of mice. Annual Meeting and Exposition of the Controlled Release Society. Québec city, Canada.
98. Papademetriou I, Garnacho C, Serrano D, Bhowmick T, **Muro S***. (2012) Targeting, intracellular uptake, and delivery in vivo of nanocarriers addressed to ICAM-1 versus transferrin receptor. Annual Meeting of the Biomedical Engineering Society. Atlanta, GA.
99. Serrano D, Chadha R, Garnacho C, **Muro S***. (2012) Role of ligand size and binding accessibility on clathrin- and caveolae-independent CAM-mediated endocytosis. Annual Meeting of the American Society of Cell Biology. San Francisco, CA.

100. Ghaffarian R, **Muro S***. (2012) Valency determines route of sub-cellular transport of drug carriers targeted to ICAM-1. Annual Bioengineering Department "Fischell" Festival. College Park, MD.
101. Serrano D, Garnacho C, **Muro S***. (2012) A fibrinogen-derived peptide induces clathrin- and caveolae-independent endocytosis in endothelial cells. Annual Molecular and Cellular Biology Retreat, University of Maryland. College Park, MD.
102. Hsu J, Bhowmick T, **Muro S***. (2012) Enhanced Kidney and Heart Delivery of alpha -galactosidase by modulating enzyme load and carrier bulk-concentration of ICAM-1-targeted nanocarriers. James Clark School of Engineering Research Festival, University of Maryland. College Park, MD.
103. Tsinas Z, **Muro S***. (2013) Nucleodendrimers for targeting, intracellular transport, and effects of therapeutic agents. SelectBio Nanomedicine Conference. Barcelona, Spain.
104. **Muro S***. (2013) A new DNA-based carrier for targeting and intracellular transport of therapeutics. World & National Innovation Summit –TechConnect. Washington DC.
105. Papademetriou Iason, **Muro S***. (2013) Multiple-cell adhesion molecule targeting modulates binding, internalization, and in vivo biodistribution of drug nanocarriers. International Translational Nanomedicine Conference. Boston, MA.
106. Ansar M, Bhowmick T,Serrano D, **Muro S***. (2013). Functionalization of drug delivery carriers to bypass size restrictions of receptor-mediated endocytosis and enhance intracellular delivery. International Translational Nanomedicine Conference. Boston, MA.
107. Mane V, **Muro S***. (2013) Dendrimers built of DNA, nucleodendrimers, provide intracellular delivery and effects of siRNA. Annual Meeting of the Biomedical Engineering Society. Seattle, WA.
108. Hsu J, Rappaport J, **Muro S***. (2013) Interaction and transport of ICAM-1-targeted nanocarriers with components of the BBB and the brain. Annual Meeting of the Biomedical Engineering Society. Seattle, WA.
109. Serrano S, Ansar M, **Muro S***. (2013) Sphingomyelinase enhances endocytosis of particulate ligands in a sizede pendent manner. Annual Meeting of the American Society of Cell Biology. New Orleans, LA.
110. Serrano D, Ansar M, **Muro S***. (2013) A strategy to enhance endocytosis of drug carriers in a carrier size-dependent manner. Bioscience Day. University of Maryland College Park, MD.
111. Manthe R, **Muro S***. (2013) ICAM-1-targeted nanocarriers attenuate the release of inflammatory mediators. Bioscience Day. University of Maryland College Park, MD.
112. Ghaffarian R, **Muro S***. (2013). ICAM-1 mediates distinct intracellular trafficking of ligands with different valency: implications for biology and drug delivery. Bioscience Day. University of Maryland College Park, MD.
113. Rappaport J, Hsu J, **Muro S***. (2013) Characterizing the uptake of targeted nanocarriers for drug delivery across the blood brain barrier. Howard Hughes Medical Institute Undergraduate Research Day, University of Maryland College Park, MD.
114. Manthe R, **Muro S***. (2013) ICAM-1-targeted nanocarriers attenuate the release of inflammatory mediators. Annual Maryland Nanomedicine Day. Baltimore, MD.
115. Hsu J, Rappaport J, **Muro S***. (2013) Transport of ICAM-1-targeted nanocarriers across brain endothelial monolayers. Annual Maryland Nanomedicine Day. Baltimore, MD.
116. Rappaport J, Garnacho C, **Muro S***. Acid sphingomyelinase deficiency associates with aberrant clathrin-mediated endocytosis, which can be restored by clathrin-independent enzyme delivery. Howard Hughes Medical Institute Undergraduate Research Day, University of Maryland College Park, MD.
117. Manthe R, **Muro S***. (2014) Abluminal release of receptor-bound nanocarriers after transcytosis via MMP-mediated proteolytic cleavage. Engineering Research Festival of the University of Maryland, College Park, MD.
118. Manthe R, **Muro S***. (2014) A mechanism of nanocarrier release from the abluminal endothelial surface. Bioscience Day, University of Maryland, College Park, MD. *Third presentation award*
119. Rappaport J, Hsu J, **Muro S***. (2014) Characterizing the uptake of targeted nanocarriers for drug delivery across the blood brain barrier. Johns Hopkins & University of Maryland Biomedical Engineering Undergraduate Research Day. *Third presentation award*
120. Ghaffarian R, Oh H, Smith T, Raghavan S, **Muro S***. (2015) Encapsulation of ICAM-1 targeted nanocarriers in chitosan-alginate microbeads. Drug Discovery Submit, Baltimore, MD.
121. Serrano D, Paul E, Chadha R, **Muro S***. (2015) Deciphering carrier design parameters that drive receptor signaling toward endocytosis for intracellular drug delivery, European Conference of Pharmaceutics and Drug Delivery, Reims, France
122. Rappaport J, Manthe R, Garnacho C, **Muro S***. (2015) Comparative study reveals alterations in several endocytic routes in various lysosomal storage disorders. 17th Barrier and Transporter Meeting, Bad Herrenalb, Germany.
123. Manthe R, **Muro S***. (2015) Role of valency on transport of ICAM-1-targeted nanocarriers to the brain. Annual Meeting of the American Society of Nanomedicine, Washington DC. *Third presentation award.*
124. Rappaport J, Manthe R, Garnacho C, **Muro S***. (2015) Comparative study reveals alterations in several endocytic routes in various lysosomal storage disorders. Engineering Research Festival of the University of Maryland, College Park, MD.

125. Kim J, Sinha D, Hsu J, **Muro S***. (2015) A strategy to avoid phagocytosis of drug nanocarriers by macrophages without affecting receptor-mediated endocytosis by specifically targeted cells. Bioscience Day. University of Maryland College Park, MD.
126. Manthe R, **Muro S*.** (2016) ICAM-1-targeted nanocarriers used for drug delivery attenuate the release of an inflammatory marker. Nanomedicine and Drug Delivery (NanoDDS) Symposium. Baltimore, MD.
127. Solomon MA, Bautista R, Moscoso R, Manthe R, **Muro S*.** (2016) Altered status of transcytosis pathways in lysosomal storage diseases: implications for targeted enzyme replacement therapy. Nanomedicine and Drug Delivery (NanoDDS) Symposium. Baltimore, MD.
128. Sinha S, Kim J, Hsu J, **Muro S*.** (2016) Polymer nanoparticles co-coated with antibodies and anti-phagocytic moieties improve specific interactions and uptake by target versus phagocytic cells. AIChE National Student Conference, San Francisco, CA. *Best presentation award.*
129. Austin F, Qamar B, Andrianov A, **Muro S*.** (2017) CD44v3 as a target for drug delivery vehicles address to cancer cells. Undergraduate Research Festival, University of Maryland College Park, MD.
130. Roki N, Bowers J, Getts R, **Muro S*.** (Sep. 2017) ICAM-1 targeting in vivo using a new DNA-built nanodevice. Nanomedicine and Drug Delivery Symposium (NanoDDS), Ann Arbor, MI.
131. Roki N, Bowers J, Getts R, **Muro S*.** (Dec. 2017) Circulation and biodistribution of ICAM-1-targetined DNA NCs in mice. Annual Symposium of the Institute for Translational Medicine and Therapeutics Symposium, Philadelphia, PA.
132. Roki N, Bowers J, Getts R, **Muro S*.** (Oct. 2018) Role of Valency and concentration dose of ICAM-1-targeted 3DNA carriers in vivo. Annual Meeting of the BioMedical Engineering Society, Atlanta, GA
133. Manthe R, Rappaport J, Solomon M, Gugutkov D, Hildreth M, Velovolu V, Long Y, Marugan J, Zheng W, **Muro S***. (Oct. 2018) Delta-tocopherol effects on fluid-phase and receptor-mediated endocytosis in type A Niemann-Pick disease: implications for enzyme replacement therapy. Annual Symposium of the Institute for BioEngineering of Catalonia
134. Manthe R, **Muro S*.** (Nov. 2018) Role of targeting valency of drug nanocarriers on their transport across the blood-brain barrier. Annual Meeting of the American Association of Pharmaceutical Scientists, Washington DC.
135. Roki N, Bowers J, Getts R, **Muro S*.** (Dec. 2018) Role of carrier size on the biodistribution of ICAM-1-targeted 3DNA carriers in vivo. Annual Symposium of the Institute for Translational Medicine and Therapeutics, Philadelphia, PA.
136. Solomon M, Chen J, Roki N, **Muro S*.** (Mar. 2019) Design and evaluation of an ICAM-1 targeted ASM-fusion protein for treatment of Niemann-Pick disease type A. Gordon Research Conference: Advances in Basic Discoveries and Therapeutic Approaches in Lysosomal Diseases, Galveston, TX.
137. Solomon M, Chen J, Roki N, Gray K, **Muro S***. (Jul. 2019) New multifunctional recombinant biological for effective treatment of type A Niemann-Pick disease. Annual Meeting and Exposition of the Controlled Release Society, Valencia, Spain.
138. Loeck M, Tump M, Muro S*. Pathological alterations affect the expression and drug targeting of transcytosis receptors in cellular models of the blood-brain barrier. (2019) Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
139. Simon-Camprecios J, Garcia-Laureu B, Fumado J, Vigo M, **Muro S***. (2020) Study of the relative expression of ICAM-1 Ig-like domains in different cell types and disease conditions. Annual Symposium of the Institute for Bioengineering of Catalonia. Online meeting,
140. Manthe R, Loeck M, Bhowmick T, Solomon M, **Muro S*.** (2020) Intertwined mechanisms define transport of anti-ICAM nanocarriers across the endothelium and brain delivery of a therapeutic enzyme. Annual Meeting and Exposition of the Controlled Release Society, Online meeting.
141. Roki N, Solomon M, Bowers J, Getts R, **Muro S*.** (2020) Modulating design parameters of 3DNA nanocarriers to tune lung targeting for drug delivery. Annual Meeting and Exposition of the Controlled Release Society, Online meeting.
142. Loeck M, Gutierrez E, Solomon M, Vives G, Garcia-Parajo M, **Muro S*.** Glucocerebrosidase Deficiency Alters Plasmalemma Nano-Scale Domains and Transcytosis of Therapeutic Nanocarriers by Brain Endothelial Cells. (2021) Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
143. Selvadoss A, Solomon M, Srikanth M, Feldman R, **Muro S***. Developing a Gaucher Disease Pharmacological Model of the Blood-Brain Barrier. (2021) Undergraduate Research Day, University of Maryland, College Park, MD, USA.
144. Srinivasan K, Solomon M, Roki N, Mane V, Getts L, Getts R, **Muro S***. Specific siRNA delivery to mouse lungs using 3DNA nanocarriers. (2021) Undergraduate Research Day, University of Maryland, College Park, MD, USA.
145. Vives G, Muntimadugu Em, Loeck M, Silva-Abreu M, Pham V, Solomon M, **Muro S*.** Optimizing Enzyme Encapsulation in Targeted Nanoparticles for Enzyme Replacement Therapy of Lysosomal Disorders. (2021). Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.

146. Loeck M, Selvadoss A, Solomon M, **Muro S*.** Different neurological disorders alter differently brain endothelial transcytosis of drug nanocarriers. (2022) 13th International Symposium on Polymer Therapeutics, Valencia, Spain.
147. Loeck, M, Placci M, Selvadoss A, Solomon M, **Muro S*.** Particular lysosomal storage disorders either facilitate or hinder transcytosis of therapeutic nanocarriers across the blood-brain barrier. (2022) Annual Symposium of the Barcelona Institute for Science and Technology, Barcelona, Spain.
148. Vigo M, Haro-Martinez E, Ruiz-Torres E, Fumado-Navarro J, Placce M, Loeck M, **Muro S*.** Cross-Species Delivery of Drug Nanoparticles Targeted to ICAM-1. (2022) Annual Symposium of the Barcelona Institute for Science and Technology, Barcelona, Spain.
149. Del Moral M, Vives G, Loeck M, **Muro S*.** Analysis of different PLGA copolymer nanoparticles for lysosomal enzyme replacement therapy (2022) Annual Symposium of the Barcelona Institute for Science and Technology, Barcelona, Spain.
150. Loeck, M, Placci M, Selvadoss, A, Solomon M, **Muro S*.** Neurological disorders affect differently blood-brain barrier transcytosis of therapeutic nanocarriers. (2022) Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
151. Vigo M, Haro-Martinex E, Ruiz-Torres E, Fumado-Navarro J, Placce M, Loeck M, **Muro S*.** Engineering new cellular models to study ICAM-1-mediated transport of therapeutic nanoparticles. (2022) Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
152. Del Moral M, Vives G, Loeck M, **Muro S*.** Role of PLGA copolymer ratio in the loading and release of therapeutic enzyme cargo. (2022) Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
153. Placci M, Vigo M, Loeck M, **Muro S*.** Transcytosis of anti-ICAM-1 nanoparticles in a transwell model of the lung endothelium. (2023) Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
154. Vigo M, Palma-Florez S, Crespo A, Lagunas A, Mir M, **Muro S*,** Samitier J*. BBB Barcelona. A BBB-organ-on-a-chip to study clathrin-independent receptor-mediated transcytosis of anti-ICAM-1 nanocarriers. (2024) First Barcelona Blood-Brain Barrier (B4) Symposium, Barcelona, Spain.
155. Vigo M, Placci M, **Muro S*.** Development of new anti-ICAM-1 antibodies, generation of drug delivery system and characterization of their targeting behavior (2024) Annual Symposium of the Institute for Bioengineering of Catalonia, Barcelona, Spain.
156. Placci M, **Muro S**, Giannotti M*. Nanomechanics of glucosylceramide enriched membrane domains in lipidosis. (2024). European South Atlantic Biophysics Congress, Donostia, Spain.

2.h. Undergraduate, Master and Doctoral Thesis Dissertations Directed

1. Study of ICAM-1-targeted nanocarriers as a strategy for drug delivery across the intestinal epithelium. Undergraduate honor thesis by Rasa Ghaffarian (2010). College of Agriculture and Natural Resources and Biology Departmental Honors Program, University of Maryland, College Park, MD.
2. Role of acid sphingomyelinase for in ICAM-1/NHE1-dependent endocytosis: implications in leukocyte transmigration. MS thesis by Daniel Serrano (2010). College of Computer, Mathematical, and Natural Sciences; Molecular and Cell Biology Program, University of Maryland, College Park, MD.
3. Sphingomyelinase coating enhances endocytosis of drug carriers targeted to cell surface receptors. Undergraduate honor thesis by Maria Ansar (2012). College of Computer, Mathematical, and Natural Sciences; Cellular Biology and Molecular Genetics Honors Program, University of Maryland, College Park, MD.
4. Investigation of strategies of drug delivery by combination targeting of nanocarrier to multiple epitopes or receptors. PhD thesis by Iason Papademetriou (2013). College of Engineering, Bioengineering Program, University of Maryland, College Park, MD.
5. Targeting intercellular adhesion molecule 1 to enhance delivery of therapeutic enzymes for treatment of lysosomal storage diseases. PhD thesis by Janet Hsu (2014). College of Engineering, Bioengineering Program, University of Maryland, College Park, MD.
6. Role of ICAM-1-mediated endocytosis in endothelial function and implications for carrier-assisted drug delivery. PhD thesis by Daniel Serrano (2014). College of Computer, Mathematical, and Natural Sciences; Biological Sciences Program, University of Maryland, College Park, MD.
7. Synthesis and characterization of surfactant-free, fluorescent poly(lactic-co-glycolic acid) nanoparticles targeted to intercellular adhesion molecule 1. MS thesis by Zois Tsinas (2015). College of Engineering, Bioengineering Program, University of Maryland, College Park, MD.
8. Investigation of intercellular adhesion molecule 1 targeted transport across the gastrointestinal epithelium. PhD thesis Rasa Ghaffarian (2015). College of Engineering, Bioengineering Program, University of Maryland, College Park, MD.
9. Concussion: examining the effect of neuronal oxidative stress on the pathophysiology of brain and blood-brain barrier cells. Undergraduate honor thesis by Gemstone Team composed by Taleeah Allen-Wright, Marta Cherpak, Hyunjo Choi, Peter Fairbanks, Jonathan Huang, Anna Patnaik, Ashwin Reddi, Shradha Sahani, Charlie Urrutia (2016). Gemstone Honor Program, University of Maryland, College Park, MD.

10. Investigation of intercellular adhesion molecule-1 targeted transport across the blood-brain barrier. PhD thesis by Rachel Manthe (2017). College of Engineering, Bioengineering Program, University of Maryland, College Park, MD.
11. Development of new antibody-drug conjugates based on Fc binding moieties for therapeutic and diagnostic applications. PhD thesis by Katia Maso. (2018) (I was an International Co-advisor for a part of her study). Pharmaceutical Sciences, Universita degli Studi di Padua, Italy.
12. Cell penetrating peptide and ICAM-1 targeting peptide mediated transcytosis of human epidermal growth factor. PhD thesis by Jing Chen (2018) (I was an International Co-advisor for a part of her study). China Pharmaceutical University, University in Nanjing, China.
13. Study of polyphosphazene carriers as an intracellular delivery system for protein therapeutics. Undergraduate honor thesis by Bareera Qamar (2019). College of Computer, Mathematical and Natural Sciences and Biology Departmental Honors Program, University of Maryland, College Park, MD.
14. Expression of receptors involved in transcytosis across the blood brain barrier: a comparison of three pathways. Undergraduate thesis by Milan Tump (2019). Biology and Medical Research, University of Applied Sciences Leiden, The Netherlands. (conducted at the Institute for Bioengineering of Catalonia, Barcelona, Spain).
15. In vivo biodistribution, lung targeting, and parametric modulation of a DNA-based drug delivery system address to ICAM-1. PhD thesis by Niksa Roki (2020). College of Engineering, Bioengineering Program, University of Maryland, College Park, MD.
16. Study of the relative expression of ICAM-1 Ig-like domains in different cell types and disease conditions. MS thesis by Jana Simon-Camprecios (2020). Biomedical Research Program, University Pompeu Fabra, Barcelona, Spain.
17. Binding of nanoparticles to endothelial cells varies depending on their barrier state, disease condition, and the transcytosis receptor targeted. Undergraduate thesis by Idysha Perez-Sanchez (2020). Biology and Medical Research, University of Applied Sciences Leiden, The Netherlands. (conducted at the Institute for Bioengineering of Catalonia, Barcelona, Spain).
18. Preparation and characterization of PLGA nanoparticles for enzyme replacement therapies. Undergraduate thesis by Guillem Vives-Marti (2021). Nanoscience and Nanotechnology Program, Universitat Autònoma de Barcelona, Barcelona. Spain.
19. Analysis of ICAM-1 expression and alternative spliced isoforms in acid sphingomyelinase deficiency. Undergraduate thesis by Pau Martí Garriga (2021). Biotechnology Program, University Ramon LLull, Barcelona. Spain.
20. Study and development of new antibody-drug conjugates for anticancer therapy. PhD thesis by Tommaso Tedeschini (2021). (I was an International Co-advisor for a part of his study). University of Padova, Italy.
21. Analysis of different PLGA copolymers nanoparticles for lysosomal enzyme release. MS thesis by Maria del Moral-Gonzalez (2022). Applied Materials Chemistry Program, University of Barcelona, Barcelona, Spain.
22. Study of the interaction of targeted nanocarriers with new cell models expressing ICAM-1 from different animal species. MS thesis by Elena Haro Martínez (2022). Molecular Biotechnology Program, University of Barcelona, Barcelona, Spain.
23. Analysis of the interactions between anti-ICAM-1 nanocarriers and an engineered cellular model expressing human ICAM-1. Undergraduate thesis by Eloy Ruiz Torres (2022). Nanoscience and Nanotechnology Program, Barcelona Autonomic University, Barcelona. Spain.
24. Comparative study of nanocarriers targeted to different transport pathways into and across the endothelium for brain delivery of therapeutic enzymes. PhD thesis by Maximilian Loeck (2022). Biomedicine Doctoral Program, Universitat de Barcelona, Spain.
25. Investigating therapeutic targeting to intercellular adhesion molecule 1 through epitope, isoform, and cross-reactivity selection. PhD thesis by Marco Vigo (2024) Biomedicine Doctoral Program, Universitat de Barcelona, Spain.

2.i. Fellowships, Prizes, and Awards.

Summary: 97 accolades (33 to Muro and 64 to Muro lab members); 7 international awards; 16 awards from professional societies on human genetic/lysosomal disorders, pharmacology/drug delivery & biomedical engineering; 13 achievement/career/leadership awards; 28 presentation awards (16 first position); 2 entrepreneurial awards; 27 fellowships; 5 travel awards.

Fellowships, Honors and Awards to Muro:

1. National Undergraduate Fellowship Program, Ministry for Education and Science, Spain. (1990-1995)
2. Fellowship to attend Genetic Engineering and Society Course, University of Granada, Spain. (1995)
3. First place award to the highest GPA in Biology, Academy of Sciences, University of Granada, Spain. (1996)
4. National Graduate Fellowship Program (FPU), Ministry for Education and Science, Spain. (1996-1999)
5. International Student Fellowship on Techniques in Cell Biology, Federation of European Biochemical Societies, UK. (1997) *Only one student per country is selected each year*

6. First Place Award to the best presentation, Spanish Society for Inborn Errors of Metabolism, Spain. (1998)
7. International Researcher Fellowship Program, Ministry for Education and Science, Spain. (1999)
8. Travel Award, Spanish Society of Biochemistry and Molecular Biology, Spain. (1999)
9. Travel Award, Society for the Study of Inborn Errors of Metabolism, UK. (1999)
10. Travel Award, Autonomic University of Madrid, Spain. (2000)
11. National Postdoctoral Fellowship Program, Institutes for Research in Health, Spain. (2000)
12. First Place Award to the best presentation, Society for the Study of Inborn Errors of Metabolism, UK. (2000)
13. NATO International Postdoctoral Fellowship Program, relinquished in favor of the fellowship described below (2000-2002)
14. Ramón Areces Foundation Postdoctoral Fellowship, Spain. (2000-2002) *Only 4 fellowships per year are awarded in the area of Biomedical Sciences in the entire country*
15. Scientist Development Grant, American Heart Association. (2004-2008)
16. First Place Award to the best presentation, Spanish Society for Inborn Errors of Metabolism, Spain. (2005)
17. Single nominee from University of Maryland for the Searle Scholarship. (2008)
18. Outstanding Invention of the Year, Category Life Sciences, University of Maryland, College Park, MD. (2011)
19. Research Leader, University of Maryland, College Park, MD. (2012).
20. Best Pitch, Faculty Venture Fair, University of Maryland, College Park, MD. (2012).
21. Junior Faculty Outstanding Research Award, Clark School of Engineering, University of Maryland. College Park, MD (2012).
22. Top 25 Women Professors in Maryland, StateStats.org & OnlineSchoolsMaryland.com (2013).
23. Board of Scientific Advisors, Meeting of the Spanish & Portuguese Chapter of the Controlled Release Society (2013).
24. Single Nominee from University of Maryland for the Blavatnik National Faculty Award (2013).
25. Outstanding Campus Leader. Campus News Publications Org. (2014, 2015).
26. Scientific Advisory Board, Genisphere LLC, Hatfield, PA (2014-2021)
27. Standing Member of the Nanomedicine (NANO) Study Section. National Institutes of Health (2014-2020).
28. Scientific Advisory Board, Symposium in Polymer Therapeutics, Valencia, Spain (2016, 2022).
29. Invited affiliate of the United Health Council, USA (2016, 2017).
30. Ignite Award of the Barcelona Institute of Science and Technology, Spain (2020).
31. Key Opinion Leader for Code Biotherapeutics Inc. Hatfield, PA (2020-2021).
32. Elected to the College of Fellows of the American Institute for Medical and Biological Engineering, USA (2021-Present)
33. Nominated Full Member of the Sigma Xi, The Scientific Research Honor Society, USA (2023, 2024).

Fellowships, Honors and Awards to Muro's mentees while in the lab:

1. Third Best Presentation Award (to Garnacho), U. Pennsylvania – School of Medicine Research Symposium, Philadelphia, PA. (2006)
2. Third Best Presentation Award (to Garnacho), Nanomedicine and Drug Delivery Symposium, Boston, MA. (2007)
3. Best Presentation Award (to Northrup and Hsu), Bioscience Day, University of Maryland College Park, MD. (2009).
4. Undergraduate Research Fellowship (to Ghaffarian), Howard Hughes Medical Institute. (Spring 2010).
5. Graduate Research Fellowship Program (to Serrano), National Science Foundation. (Aug.2010-Jul.2013)
6. Best Presentation Award (to Serrano), Graduate Research Interaction Day, University of Maryland College Park, MD. (2010)
7. Third Best Presentation Award (to Northrup), AIChE Mid-America, Iowa, IA. (2010).
8. High Honors (to Ghaffarian), Dept. Biology, U. Maryland College Park. (2010)
9. Second Best Presentation Award (to Serrano), Bioscience Day, University of Maryland College Park, MD (2010)
10. First (tie) Place Award in Bioengineering Capstone (to Li, Lin, Parrija, Tsai, and Zhang). (2010)
11. Future Faculty Program (to Hsu), School of Engineering. (Spring 2011-Fall 2013)
12. First Place Award to the best presentation (to Hsu), Graduate Research Interaction Day, University of Maryland College Park, MD. (2011)
13. First Place Award to the best presentation (to Serrano), Annual Retreat of the Department of Molecular and Cellular Biology, University of Maryland College Park, MD. (2011)
14. Graduate Research Fellowship Program (to Ghaffarian), NSF. (Sep.2011-Aug.2014)
15. Outstanding Invention of the Year (listed above, shared with Ghaffarian), Category Life Sciences, Office of Technology and Commercialization, University of Maryland, College Park, MD. (2011)

16. Outstanding Consumer & Diversified Products Best Paper Award (to Bhowmick), Controlled Release Society. (2011).
17. Fourth best presentation award (to Serrano), Nanomedicine and Drug Delivery Symposium, Salt Lake City, UT. (2011).
18. Best Pesentation Award and Young Investigator Award (to Ghaffarian), Annual Meeting of the American Society of Nanomedicine, Rockville, MD. (2011).
19. Graduate Research Fellowship (to Manthe), National Science Foundation (Aug.2011-May.2014)
20. Undergraduate Research Fellowship (to Ansar), Howard Hughes Medical Institute. (2012-2013).
21. Travel Award (to Hsu), World Organization for Rare Lysosomal Disorders, US. (2012).
22. Runner up, Presentation Award (to Hsu), James Clark School of Engineering Research Festival, University of Maryland, College Park, MD. (2012)
23. High Honors (to Ansar), Dept. of Cell Biology and Molecular Genetics, U. Maryland College Park. (2012)
24. P. Arne Hansen Award (to Ansar), Dept. of Cell Biology and Molecular Genetics, U. Maryland College Park, MD (2012)
25. Outstanding Graduate Research (to Hsu), Fischell Department of Bioengineering, U. Maryland College Park, MD. (2012)
26. Undergraduate Research Fellowship (to Rappaport), Howard Hughes Medical Institute. (2013).
27. Third Best Presentation Award (to Rappaport), Johns Hopkins – University of Maryland Bioengineering Undergraduate Research Day. Johns Hopkins, Baltimore, UMD (2013).
28. Best Biochemistry Presentation and Best Biochemistry Exhibit (to Tao); Prince George's County Competition, MD (2013).
29. Outstanding Junior Award (Rappaport), the Fischell Department of Bioengineering, University of Maryland College Park, MD. (2013).
30. Outstanding Teaching Assistant (to Manthe). University of Maryland College Park, MD. (2013)
31. Best Paper Award (to Rachel Manthe), Biomedical Education Division, 120th ASEE Annual Conference and Exposition, Atlanta, GA (2013).
32. Best Presentation Award (to Hsu). Engineering Research Festival. University of Maryland College Park, MD. (2013).
33. Outstanding Undergraduate Research Award (Rappaport), the Fischell Department of Bioengineering, University of Maryland College Park, MD. (2014).
34. Outstanding Leadership Award (Rappaport), Engineering School, University of Maryland College Park, MD. (2014).
35. Honorable Mention (to Manthe), Ford Foundation. (2014).
36. Best Paper and Young Investigator Award (to Hsu). Annual Meeting of the American Society of Nanomedicine. (2014).
37. Third Best Presentation (to Manthe). Bioscience Day, University of Maryland College Park. (2014).
38. Best Presentation Award (to Manthe), Graduate Research Interaction Day, University of Maryland College Park, MD (2014).
39. Third Best Presentation (to Rappaport), Johns Hopkins & University of Maryland Biomedical Engineering Undergraduate Research Day (2014)
40. Best Presentation Award (to Ghaffarian). Graduate Research Interaction Day (2015).
41. Third Presentation Award (to Manthe), Meeting of the American Society for Nanomedicine (2015).
42. F31 Ruth L. Kirschstein National Research Graduate Research Fellowship (to Manthe), NIH (July 2015 – June 2017).
43. Travel Grant (to Manthe), Jacob K. Goldhaber Foundation (2016).
44. Best Presentation Award (to Ghaffarian), Graduate Research Interaction Day, U. Maryland College Park, MD (2015).
45. Lysosomal Disease Network Fellowship (to Solomon), NIH – NCATS (2015-2016)
46. Second Presentation Award (to Kim), Johns Hopkins & University of Maryland Biomedical Engineering Undergraduate Research Day. (2016)
47. Undergraduate Research Fellowship (to Feng), Howard Hughes Medical Institute. (2016).
48. Best Presentation Award (to Sinha). AIChE National Student Conference, San Francisco, CA. (2016).
49. Second Place-Biomedical and Health Sciences Exhibit (to Agha); Eleanor Roosevelt High School Science Fair, MD (2017).
50. MPower Award (to Muro's Capstone team); University of Maryland College Park & University of Maryland Baltimore, MD (2017)
51. Third place Dean's Graduate Dissertation Award (to Manthe), School of Engineering, University of Maryland College Park, MD. (2017)
52. Undergraduate scholarship (to Tump), ERASMUS Program. (2018)
53. PhD fellowship (to Loeck), La Caixa Foundation, Spain. (2018)

54. Best PhD Dissertation Award (to Maso), Controlled Release Society - Italian Chapter. (2018)
55. Postdoctoral Fellowship (to Mulens), BEST Program of the Catalan Institute for Bioengineering, Barcelona, Spain. (2018)
56. High Honors (to Qamar), Dept. of Cell Biology and Molecular Genetics, U. Maryland College Park. (2019)
57. Undergraduate scholarship (to Perez), ERASMUS Program. (2019)
58. PhD fellowship (to Hasa), AGAUR Generalitat Catalunya, Spain. (2019)
59. Ann G. Wylie Semester Dissertation Fellowship (to Roki), U. Maryland College Park. (2020)
60. Undergraduate scholarship (to Lan), ERASMUS Program. (2020)
61. PhD fellowship (to Vigo), FPI from the Ministry for Science & Innovation, Spain (2020)
62. PhD fellowship (to Fumadó), FPI from the Ministry for Science & Innovation, Spain (2020)
63. MS fellowship (to del Moral), IBEC & Severo Ochoa Excellence Program (2021).
64. PhD fellowship (to Placci), FPI from the Ministry for Science & Innovation, Spain (2022)

2.j. Editorials, News, and Press Releases Commenting on Muro's Scholarly Products.

1. Editorial in J Cell Sci 116: e804 (2003). Comment on Muro et al., "A novel endocytic pathway induced by clustering endothelial ICAM-1 or PECAM-1", J Cell Sci, 2003; 116(Pt 8):1599-1609.
2. Press release "Nanotechnology promises combined molecular imaging and therapy for vulnerable plaques", Vulnerable Plaque – Association for Eradication of Heart Attack, VPWatch, March 19, 3(11), (2003). Release on Murciano et al., "ICAM-directed vascular immunotargeting of plasminogen activators to the endothelial luminal surface", Blood, 2003, 101(10): 3977-3984.
3. Editorial "News and Views "Well Preserved", in: Nature Medicine, (2003) 9:397. Editorial on Kozower et al., "Immunotargeting of catalase to the pulmonary endothelium alleviates oxidative stress and reduces acute transplantation lung injury", Nature Biotechnology, 2003, 21:392-398.
4. Press release "Healthy-on-arrival lung transplants", in: Nature Biotechnology (2003), on Kozower et al., Nat Biotech 2003.
5. Press release by A. McCook, "New technique may help in lung transplantation", in: Reuters web-site "Health", (2003), on Kozower et al., Nat Biotech 2003.
6. Editorial comment "Breath Easier", in New Scientist p.27 (2003), on Kozower et al., Nat Biotech 2003.
7. Editorial comment "Greffon pulmonaire: une approache pour attenuer le stress oxydatif", in: Le Quotidien Du Medecin, Paris, #7301, March 25th (2003), p.6, on Kozower et al., Nat Biotech 2003.
8. Press release "Antibody/enzyme combo protects lungs from oxidative stress damage", in: UPenn Health System Press Release, March 24 (2003), on Kozower et al., Nat Biotech 2003.
9. Editorial by R. Stan "Endocytosis pathways in endothelium: how many?" in: Am J Physiol Lung Cell Mol Physiol, (2006) 290(5):L806-L808. Editorial on Muro et al., "Control of intracellular trafficking of ICAM-1 targeted nanocarriers by endothelial NHE proteins" Am J Physiol Lung Cell Mol Physiol, 2006, 290:L809-817. 10;149(3):207-208.
10. Editorial "Form and function of drug delivery carriers", in: Mol Ther (2008) 16(8):1352. Comment on Muro et al., "Controlled endothelial targeting and intracellular delivery of therapeutics by modulating size and shape of ICAM-1-targeted carriers". Mol Ther (2008), 16(8):1450-1458.
11. Cover story by K. Park. "Enhanced delivery to endothelial lysosomes by ICAM-1-targeted nanocarriers", in J Control Rel (2011), 149:207-208. Comment on Hsu at al., "Enhanced delivery and biochemical effects of enzyme replacement for Fabry disease by ICAM-1-targeted nanocarriers". J Control Rel, 2011, 10;149(3):323-31.
12. University of Maryland News & Events: Invention of the Year Award. 11/2011 (http://www.clark.umd.edu/facstaff/invention-award)
13. University of Maryland News & Events: "Innovative Drug Delivery System Wins Venture Fair at UMD Bioscience Research Day". 12/11/2012. (http://research.umd.edu/news/news_story.php?id=7064)
14. University of Maryland News & Events: "Kofinas and Muro honored for research". 12/14/2012. (http://bioe.umd.edu/news/news_story.php?id=6983).
15. Editorial by G.M. Lanza "ICAM-1 and nanomedicine: nature's doorway to the extravascular tissue realm" in Arterioscler Thromb Vasc Biol. 2012 May;32(5):1070-1071. Editorial on Serrano et al., "A fibrinogen-derived peptide provides ICAM-1-specific vascular targeting and intra-endothelial transport of polymers nanocarriers in cell cultures and mice" Arterioscler Thromb Vasc Biol, 32(5):1178-1185.
16. University of Maryland News & Events: "Clark Professors Honored as Top Women Professors in Maryland." 07/05/2013. (http://isr.umd.edu/news/news_story.php?id=7365)
17. University of Maryland News & Events: "UMD Researchers Explore New Avenues in Treatment of Lysosomal Storage Diseases". 01/5/2015. (http://research.umd.edu/news/news_story.php?id=8748).

18. News: “Challenges of getting drugs across the blood-brain barrier” by Randolph Fillmore and Keith Freeman. AAPS News Magazine, official publication of the American Association for Pharmaceutical Scientists. 01/01/2016.
19. University of Maryland News & Events: Muro develops technique to improve oral drug delivery using targeted. nanocarriers. 10/31/2016. (http://eng.umd.edu/html/news/news_story.php?id=10059).
20. Article “Faces of faculty: Silvia Muro” in The Catalyst, University of Maryland Undergraduate Bioengineering Research Journal Issue 6, Jan. 2017. (http://bioe.umd.edu/sites/default/files/documents/Catalyst%20issue%206%20online.pdf).
21. Press release: “Genisphere begins collaboration with University of Maryland”, Genisphere LLC, Hatfield PA (April 21, 2017)
22. Press release: “The Institute for Bioengineering of Catalonia launches a crowdfunding campaign to fight agains Parkinson’s”. IBEC, Barcelona, Spain (April 10, 2019)
23. News: “IBEC searches for a new route to access the brain to treat Parkinson’s”. EFE, La Vanguardia, Barcelona, Spain (April 11, 2019).
24. News; “El programa BIST Ignite selecciona cinco nuevos proyectos disruptivos”. iSanidad, Las Rozas, Spain. (March 2020).
25. News: “La almeriense Silvia Muro, en la élite de ingeniería médica y biológica de EEUU.” La Voz de Almeria, Almeria, Spain (March 2021).
26. News: La almeriense Silvia Muro ingresa al prestigioso Instituto Americano de Ingenieria Medica y biológica”. Almeria Noticias, Spain (April 2021).
27. Press reléase: “Izasa Scientific participa en la campaña del IBEC Faster Future contra el Parkinson”, Izasa Scientific SL, Spain (Oct. 2021).

3. Service and Outreach.

3.a. Professional Service.

Memberships and Organization (national and international):

1. Ad hoc, member of the American Society for Cell Biology, American Heart Association, Biomedical Engineering Society, American Chemical Society, and Controlled Release Society.
2. Co-Chair, “New strategies for vaccination and immunotherapy” Session. VII Spanish-Portuguese Conference on Controlled Drug Delivery. Pamplona, Spain. (Oct. 2006).
3. Co-Chair, Session II, 7th International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice. Valencia, Spain. (May 2008).
4. Chair, Drug Delivery Session, 26th Annual Southern Biomedical Engineering Conference. College Park, MD, USA. (Apr. 2010).
5. Poster evaluator, 8th Nanomedicine and Drug Delivery Symposium. Omaha, NE, USA. (Oct. 2010).
6. Organizing Committee member, International Conference on Nanotechnology and Nanomedicine. Omaha, NE, USA. (Mar. 2012).
7. Discussion leader, Drug Carriers-Gordon Conference, Waterville, NH. (Aug. 2012).
8. Board of Scientific Advisors, Meeting of the Spanish & Portuguese Chapter of the Controlled Release Society (2013).
9. Scientific Advisory Board & Consultancy, Genisphere LLC, Hatfield, PA (2014-2021).
10. Scientific Advisory Board, International Symposium on Polymer Therapeutics, Valencia, Spain (2016, 2022).
11. Invited affiliate of the United Health Council, USA (2016 and 2017).
12. Session Co-Chair, 11th International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice. Valencia, Spain. (May 2016).
13. Session Moderator, Nanomedicine and Drug Delivery (NanoDDS) Symposium, Baltimore, MD (Sep 2016).
14. Session Discussant, International Symposium on Polymer Therapeutics, Valencia, Spain (2018). *Invited but could not attend due to family medical emergency.*
15. Reviewer, 2nd International Conference and Exhibition on Nanotechnology, San Diego, CA, USA (Nov. 2018)
16. Co-Chair of Session “Global Health and Neglected Diseases”, Annual Meeting and Exposition of the Controlled Release Society, Valencia, Spain (Jul. 2019).
17. Strategic Plan Advisor, Spanish Association for ASMD Patients, Madrid, Spain (Dec. 2020).
18. Key Opinion Leader for Code Biotherapeutics Inc. Hatfield, PA (2020-2021).
19. Scientific Advisory Board, International Symposium on Polymer Therapeutics, Valencia, Spain (2022).
20. Scientific Advisory Board, Nocturna Therapeutics, Barcelona, Spain (2023-Present).

21. Poster-Flash Presentation Evaluator, Annual Symposium of the Institute for Bioengineering of Barcelona, Cornella de Llobregat, Spain (2024).

Reviewing Activities for Funding Agencies (national and international)

1. NIH Center for Scientific Review, Special Emphasis Panel ZRG1 BSTM. (2009)
2. DoD Congressionally Directed Medical Research Program, Breast Cancer Research Program, Panel TRN CET A. (2010).
3. Italian Telethon Foundation, Telethon Grant Proposal on Genetic Diseases. (2010).
4. NIH Center for Scientific Review, Special Emphasis Panel 2011/05 HLBP 1-32 BSTM. (2011)
5. National Tay-Sachs & Allied Diseases Association Inc., Proposals on Neurodegenerative Disorders Affecting the CNS. (2011)
6. NIH Center for Scientific Review, Special Emphasis Panel/Scientific Review Group 2011/10 GDD. (2011)
7. NIH Center for Scientific Review, Special Emphasis Panel/Scientific Review Group 2012/05 GDD. (2012)
8. NIH Center for Scientific Review, Special Emphasis Panel/Scientific Review 2013/01 NANO. (2012)
9. Czech Science Foundation, Grant Proposal Reviewer. (2013).
10. Vienna Science & Technology Fund (2014).
11. New Zealand Marsden Fund (2014).
12. "Building Blocks of Life" Program, Chemical Sciences of the Netherlands Organisation for Scientific Research. The Netherlands (2016).
13. Israel Science Foundation (2017).
14. European Research Council. ERC-2018-STG (2018).
15. Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO) | Domein Exacte en Natuurwetenschappen (ENW) | Junior programmacoördinator Chemie en Natuurkunde. (2018).
16. Czech Science Foundation, Grant Proposal Reviewer. (Jul. 2019).
17. Spanish Research Agency – MINECO Retos Program, Nov. (2019).
18. Israel Science Foundation (2020).
19 NIH Center for Scientific Review, Standing member of the Nanomedicine (NANO) Study Section, July-2014 – June 2020 (2-3 review events per year during this period).
20. Czech Science Foundation, Grant Proposal Reviewer. (2020).
21. NIH Center for Scientific Review, ZRG1 BST-R/10 SBIR (2020)
22 Spanish Research Agency, Ideas Semillas, Reviewer (2021)
23 Spanish Research Agency – MINECO Retos Program, Nov. (2021).
24 Spanish Research Agency – Proyectos de Generación de Conocimiento, Reviewer (2022).
25 European Resarch Council, Advanced Grant, LS7 Panel Ad Hoc Reviewer (2022)
26 Small Business-Biomaterials, delivery, and nanotechnology, USA National Institutes of Health, Reviewer (2022)

Editorships, Editorial Boards, and Reviewing Activities for Journals.

1. Guest Editor of Special Topic Issue "Lysosomal Therapies and Drug Delivery Strategies", Advanced Drug Delivery Reviews (Nov. 2023).
2. Guest Editor of Special Topic Issue "Drug Delivery Across Biological Barriers", Curr. Pharm. Des. 2016;22(9).
3. Editor, Book "Drug delivery across physiological barriers" (2016), Pan Stanford. ISBN 9789814669405.
4. Managing Editor of Special Topic Issue "New Frontiers in Drug Delivery", in Frontiers in Bioscience (2009-2012).
5. Editorial board, Advanced Drug Delivery Reviews (2016-Present)
6. Editorial board, WIREs – Nanomedicine and Nanotechnology, Wiley Interdisciplinary Reviews (2019-Present)
7. Editorial board, Journal of Applied Sciences - Chemistry, MDPI (2018-2020)
8. Editorial board, Current Pharmaceutical Design (2020-2022)
9. Editorial board, Journal of Nanomedicine and Biotherapeutic Discovery, (2012-2019).
10. Editorial board, Journal of Pharmaceutics, Drug Delivery & Safety (2016).
11. Reviewer for the book "Control of amphiphile self-assembling at the molecular level: supra-macromolecular assemblies with tuned physicochemical properties for drug delivery applications, ACS Books (2017).
12. Reviewer for the Book "Nanotechnology for Nanomedicine", Springer (2014).
13. Reviewer for the Book "Frontiers in Nanomecine 1", Benthan Science Publishers (2012).
14. Journal Reviewer (40+ journals): ACS Applied Materials & Interfaces (since 2016); ACS Nano (since 2015); Acta Biomateralia (since 2017); Advanced Drug Delivery & Research (since 2013); African Journal of Biotechnology (since 2012); Angewandte Chemie (since 2015); Annals of Biomedical Engineering (since 2011); Biochemica & Biophysica Acta (since 2013); Biomacromolecules (since 2008); Biomedical Nanotechnology (since 2013); BMC Immunology (since 2005); Cell Biochemistry and Biophysics (since 2005); Chemical Reviews (since 2017); Chemistry (since 2012); Current Nanomedicine (since 2017); Drug Delivery (since 2016); Drug

Discovery Today (since 2016); Expert Opinions on Drug Delivery (since 2015), Expert Opinions on Emerging Drugs (since 2010); FEBS Letters (since 2016); Gene Therapy (since 2012); International Journal of Experimental Medicine (since 2012); International Journal of Peptide Research & Therapeutics (since 2016); International Journal of Nanomedicine (since 2011); Journal of Biomedical Nanotechnology (since 2017); Journal of Cell Biology (since 2010); Journal of Cellular Biotechnology (since 2013); Journal of Controlled Release (since 2008); Journal of Drug Targeting (since 2017); Journal of Gene Medicine (since 2006); Journal of Rare Diseases (since 2017); Langmuir (since 2015); Molecular Pharmaceutics (since 2005); Molecular Therapy (since 2009); Nanoletters (since 2013); Nanomedicine (since 2010); Nanomedicine: Nanotechnology, Biology, and Medicine (since 2014); PLOS One (since 2013); Therapeutic Delivery (since 2013); Virology (since 2011); Wiley Interdisciplinary Reviews: Nanomedicine (since 2008).

3.b. Service to University of Maryland & IBEC-BIST.

Departmental or Institute level.

1. Graduate Studies Committee, Fischell Department of Bioengineering, University of Maryland College Park. (2008-2013).
2. Admission Committee, Molecular and Cellular Bioengineering Program, Research Experiences for Undergraduates (REU), Fischell Department of Bioengineering, University of Maryland College Park. (Spring 2009).
3. Search Committee, Director of Finances, Fischell Department of Bioengineering, University of Maryland College Park. (2010).
4. Faculty Search Committee, Fischell Department of Bioengineering, University of Maryland College Park. (2010).
5. Seminar Series Coordinator, Fischell Department of Bioengineering, University of Maryland College Park. (Fall 2011-Spring 2012).
6. Faculty Merit Committee, Fischell Department of Bioengineering, University of Maryland College Park. (Spring 2013).
7. Funding Strategies – Department Retreat Committee, Fischell Department of Bioengineering, University of Maryland College Park. (Summer 2013).
8. Faculty Search Committee, Fischell Department of Bioengineering, University of Maryland College Park. (2013).
9. Leader Drug Delivery Area, Biomolecular Engineering, Institute for Bioscience and Biotechnology Research Strategic Plan (Spring 2014).
10. Faculty Merit Committee, Institute for Biosciences and Biotechnology Research, University of Maryland College Park. (Spring 2014)
11. Facilities and Services Committee, Institute for Biosciences and Biotechnology Research, University of Maryland College Park. (2015-Present)
12. Chair of the Faculty Search Committee, Institute for Biosciences and Biotechnology Research, University of Maryland College Park. (2015)
13. *Ad hoc* Advance and Promotion Committee, Fischell Department of Bioengineering, University of Maryland College Park. (2015-2016)
14. Faculty Merit Committee, Fischell Department of Bioengineering, University of Maryland College Park. (2016)
15. Faculty Affairs Committee, Fischell Department of Bioengineering, University of Maryland College Park. (2016-2017)
16. Graduate Studies Committee, Fischell Department of Bioengineering, University of Maryland College Park. (2017-2018)

College level.

1. Chair, Junior Faculty Research Award Committee, School of Engineering, University of Maryland College Park. (2013).
2. Bioengineering Chair Search Committee, School of Engineering, University of Maryland College Park. (Fall 2014-2015).
3. Chair, Junior Faculty Research Award Committee, School of Engineering, University of Maryland College Park. (2015).
4. Professional Track Guidelines Committee, Engineering Council, School of Engineering, University of Maryland College Park. (2015-2016).

Campus level.

(UMD unless IBEC-BIST is indicated)

1. Steering Committee – Clark Hall, new building home to the Bioengineering Department & Institute for Biomedical Devices Building (2012-2016).

2. Gemstone Program Mentor – Undergraduate Honors, University of Maryland College Park (2013-2016).
3. Limited Submission Review Committee within the Division of Research, University of Maryland College Park (2015-*Ad hoc*; 2016-2020).
4. Miscellaneous PhD qualifying exams, proposals, and defense committees, ≈40 (2008-2018).
5. Wylie Thorton Fellowship Selection Committee (2017)
6. IBEC Selection Policy Committee (2018).
7. IBEC Research Integrity Committee (2018-2023).
8. UMD Coronavirus Seed Grant Program (2020).
9. IBEC Search Committee – Director of Technology Transfer Office (2020)
10. IBEC's PhD Fellowship Selection Committee (2021) and Interviewer for this Program (2018, 2020).
11. BIST's MS Fellowship Reviewer (2021 & 2022)

Inter-Campus level

1. U. Maryland Baltimore – U. Maryland College Park, Seed Grant Program (2008, 2011, and 2014).
2. Seed Grant Program Review Committee, Institute for Bioscience and Biotechnology Research, University of Maryland College Park, (2012).
3. Search Committee, IBBR Director, University of Maryland System (2012 and 2013).
4. IBEC-BIST "To the mother of science" fellowship selection Committee (2018).
5. IBEC-IRB-CNAG-Generalitat de Catalonia "ORFEU Program", to organize research centers to participate in the screening of COVID-19, IBEC logistic and security committee (2020).

Mentoring of Assistant Professors:

1. Academic mentor for Silvina Matyziak, Assistant Professor, Fischell Department of Bioengineering. (2014-2018)
2. Academic mentor for Christopher Jewell, Assistant Professor, Fischell Department of Bioengineering. (2015)
3. Teaching evaluation of: Silvina Matyziak, Christopher Jewell, and Steven Jay. (2015-2016)

Thesis committees: *(those of Muro's advisees listed in Section 3e above have been excluded)*

1. Sweet, Deborah	PhD proposal (Chair: Ghandehari), Bioengineering Graduate Program, University of Maryland College Park. (Sep. 2008).
2. Stroka, Kimberly	PhD proposal (Chair: Aranda-Espinoza), Bioengineering Graduate Program, University of Maryland College Park. (Jan. 2009).
3. Coates, Emily	PhD proposal (Chair: Fisher), Bioengineering Graduate Program, University of Maryland College Park. (May 2010).
4. Sweet, Deborah	PhD defense (Chair: Ghandehari), Bioengineering Graduate Program, University of Maryland College Park. (Oct. 2010).
5. Bacalocostantis, Irene	PhD proposal (Chair: Kofinas), Bioengineering Graduate Program, University of Maryland College Park. (Dec. 2010).
6. Melvin Wiggins	PhD pre-proposal (Chair: Song), Molecular and Cellular Biology – Biological Sciences Program, University of Maryland College Park. (May 2011).
7. Melvin Wiggins	PhD proposal and qualifying exam (Chair: Song), Molecular and Cellular Biology – Biological Sciences Program, University of Maryland College Park. (Sep. 2011).
8. Wu, Hsuan-Chen	PhD defense (Chair: Bentley), Bioengineering Graduate Program, University of Maryland College Park. (Fall 2011).
9. Coates, Emily	PhD defense (Chair: Fisher), Bioengineering Graduate Program, University of Maryland College Park. (Apr. 2012).
10. Adam Behrens	PhD proposal (Chair: Kofinas), Bioengineering Graduate Program, University of Maryland College Park. (Apr.. 2012).
11. Bacalocostantis, Irene	PhD defense (Chair: Kofinas), Bioengineering Graduate Program, University of Maryland College Park. (May. 2012).
12. Nacev, Alek	PhD proposal (Chair: Shapiro), Bioengineering Graduate Program, University of Maryland College Park. (Jun. 2012).
13. Nacev, Alek	PhD defense (Chair: Shapiro), Bioengineering Graduate Program, University of Maryland College Park. (Mar. 2013).
14. Renee Hood	PhD proposal (Chair: DeVoe), Bioengineering Graduate Program, University of Maryland College Park. (Jul. 2012).

15. Renee Hood	PhD defense (Chair: DeVoe), Bioengineering Graduate Program, University of Maryland College Park. (Mar. 2014).
16. Qian Yu	PhD proposal (Chair: Song), Molecular and Cellular Biology – Biological Sciences Program, University of Maryland College Park. (Sep. 2015)
17. Qian Yu	PhD qualifying exam (Chair: Song), Molecular and Cellular Biology – Biological Sciences Program, University of Maryland College Park. (Dec. 2015)
18. Krystina Hess	PhD proposal (Chair: Jewel), Bioengineering Graduate Program, University of Maryland College Park. (Apr. 2016).
19. Xiaoran Shang	PhD pre-proposal (Chair: Nelson), Molecular and Cellular Biology – Biological Sciences Program, University of Maryland College Park. (Sep. 2016).
20. Krystina Hess	PhD defense (Chair: Jewel), Bioengineering Graduate Program, University of Maryland College Park. (Summer 2018).
21. Essi Taipeleenmaki	PhD defense (Chair: Stadler), Aarhus University, Denmark. (Oct. 2019).
22. Sonia Vicente Ruiz	PhD defense (Chair: Vicent), Universidad de Valencia, Spain (Jul. 2020).
23. Elena Lantero Escolar	PhD defense (Chair: Fernández-Busquest), Universidad de Barcelona, Spain (Dec. 2020).
24. Teodora Adrian	PhD follow-up committee (Director: Albertazzi), Universidad Autónoma de Barcelona, Span (2018-2021)
25. Davia Prischisch	PhD defense (Chair: Gorostiza), Universidad de Barcelona, Spain (Jan. 2021).
26. Judit Tomsen	PhD defense (Chair: Ventosa), Universidad Autonoma de Barcelona, Spain (Jul. 2021).
27. Sujey Palma-Florez	PhD follow-up committee (Director: Samitier), Universidad de Barcelona, Span (2021-2024)

Research aptitude examination committees. (Bioengineering Graduate Program)

2009: (3 students) Carlos Luna, Ji Lee, and Charles Kuo.
2010: (4 students) Chia-Pin Liang, Alex Nacev, Gunja Dave, and Renee Hood.
2011: (3 students) Genevieve Hill, Steven Graff, and Omar Ayyub.
2012: (3 students) Libet Garber, Susan Hamilla, and John Lin.
2013: (3 students) Lauren Field, Sheryl Chocron, and Melissa Rhoads.
2014: (2 students) Juliana Cano-Mejia, Che-Ying Kuo
2017 (2 students): Eli Pottash, Thomas Hunter.

Outreach, open-house events, and community activities.

1. Banneker Key Scholarship Reception (2009 and 2011).
2. Bioengineering Graduate Program Open House (2009-2017).
3. Cell Biology and Molecular Genetics Graduate Program Open House (2009).
4. Biological Sciences Graduate Program Open House (2011-2016).
5. IBEC open house for prospect MS students (2019, 2020,2021).

3.c. Other Community Service, Outreach and Divulgation.

1. Career and research advisor to students in the Eleanor Roosevelt High School Science & Technology Program at Prince George's County, MD (since 2008): Ashlee Green (Nov. 2008-May 2009); Rishi Chadha (Sep. 2009-May 2010); Jichele Harris (Sep. 2010-May 2011); Meilin Lin (Sep. 2011-May 2012); Michael Tao (Sep. 2012-Aug 2013); Tricia Restum (Sep. 2013-May 2014); Ronaldo Moscoso (Sep.2015-May 2016); Ngonda Agha (Sep. 2016-2017).
2. Career and research advisor to students in the Centennial High School at Howard County, MD (since 2016): Vignesh Pernati (Sep. 2016-2017).
3. Career and research advisor to students in the Blair High School Math-Science-Computer Science Magnet Program at Montgomery County, MD (since 2016): Jordi Long (Jun. 2016 – Sep. 2016).
4. Participation in outreach efforts of the American Heart Association to bring awareness of science as a career path to high school students, by providing letters of encouragement and description of personal experience (*ad hoc*).
5. Mentor in the International Mentor/Protégé Program of the Controlled Release Society (*ad hoc*).

4. Teaching, Mentoring, and Advising.

4.a. Courses where Muro was main instructor.

1. BIOE485 Capstone I, Bioengineering Undergraduate Program, University of Maryland College Park (UMD). Faculty supervisor. (Fall 2009)
2. BIOE612 Physiological Evaluation of Bioengineering Design, Core course, Bioengineering Graduate Program, UMD. (Spring 2010)
3. BIOE486 Capstone II, Bioengineering Undergraduate Program, UMD. Faculty supervisor. (Spring 2010)
4. BIOE612 Physiological Evaluation of Bioengineering Design, Core course, Bioengineering Graduate Program, UMD. (Spring 2011)
5. BIOE612 Physiological Evaluation of Bioengineering Design, Core course, Bioengineering Graduate Program, UMD. (Spring 2012)
6. BIOE612 Physiological Evaluation of Bioengineering Design, Core course, Bioengineering Graduate Program, UMD. (Spring 2013)
7. GEMS296 Team Project Seminar 1. Honor Course. UMD. (Fall 2013)
8. BIOE612 Physiological Evaluation of Bioengineering Design, Core course, Bioengineering Graduate Program, UMD. (Spring 2014)
9. GEMS297 Team Project Seminar 2. Honor Course. UMD. (Spring 2014)
10. GEMS396 Team Project Seminar 3. Honor Course. UMD. (Fall 2014)
11. BIOE612 Physiological Evaluation of Bioengineering Design, Core course, Bioengineering Graduate Program, UMD. (Fall 2015)
12. GEMS397 Team Project Seminar 5. Honor Course. UMD. (Fall 2015)
13. BIOE340 Modeling Physiological Systems, Core course, Bioengineering Undergraduate Program, UMD. (Spring 2016)
14. GEMS496 Team Project Seminar 6. Honor Course. UMD. (Spring 2016).
15. BIOE340 Modeling Physiological Systems, Core course, Bioengineering Undergraduate Program, UMD. (Spring 2017)

4.b. Course and Curriculum Development.

16. Developed a new course: BIOE612 Physiological Evaluation of Bioengineering Design, a core course in the Bioengineering Graduate Program, and taught it for the first time at the University of Maryland College Park. This course was designed *de novo*, as its scope has no exact precedent in Bioengineering or Biomedical Engineering disciplines: it teaches fundamental biology and biomedicine from the translational perspective of (a) incorporating structural, functional, and/or regulatory components of biological systems into translational bio(medical)engineering designs, and (b) evaluating the potential impact of said designs on the biological parameters that regulate physiology and pathology. BIOE612 has been supplemented with a course website containing book chapters, research and review articles, and notes prepared by Muro to compile a manual for this course. The course was additionally recorded by video and has also been offered online for the Professional Master degree in Engineering.
17. Assisted in the reorganization of the current curriculum for the Bioengineering Graduate Program as a part of the Graduate Program Committee in the Fischell Department of Bioengineering.
18. Evaluated the Biology content of the Bioengineering Undergraduate Program and suggested changes to improve the curricula.

4.c. Other Contributions to Teaching. (Muro was faculty advisor for lab rotations or guest instructor for other courses)

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19. Molecular Pathology Laboratory, undergraduate level. Department of Biochemistry and Molecular Biology, School of Sciences, University Autonoma of Madrid, Spain. Teaching Assistant in 1996-1997, ~30 students.
20. Biochemistry Laboratory, undergraduate level. Department of Biochemistry and Molecular Biology, School of Sciences, Autonomic University of Madrid, Spain. Teaching Assistant in 1997-1998, ~50 students.
21. Molecular Genetics Laboratory, undergraduate level. Department of Biochemistry and Molecular Biology, School of Sciences, Autonomic University of Madrid, Spain. Teaching Assistant in 1998-1999, ~50 students.
22. PHRM570 Principles in Cardiovascular Biology, Pharmacology Graduate Program, University of Pennsylvania, Philadelphia, PA. Guest lecturer in 2006, 2007, and 2008, ~10 students per semester.
23. CBMG688A Cell Biology and Molecular Genetics Graduate Laboratory Rotations, UMD. (Fall 2008)
24. MOCB699 Molecular and Cellular Biology Graduate Laboratory Rotations, UMD. (Fall 2008)

25. BIOE605 Bioengineering Graduate Program Laboratory Rotations, UMD. (Fall 2008)
26. CBMG668A Research Experiences, Cell Biology and Molecular Genetics Graduate Program, UMD. (Fall 2008)
27. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD (Fall 2008)
28. CBMG688A Cell Biology and Molecular Genetics Graduate Laboratory Rotations, UMD. (Spring 2009)
29. BIOE606 Bioengineering Graduate Program Laboratory Rotations, UMD. (Spring 2009).
30. BIOE453 Introduction to Biological Materials, Bioengineering Undergraduate Program, UMD. (Spring 2009).
31. Molecular and Cellular Bioengineering, Research Experiences for Undergraduates (REU) Program, UMD. (Summer 2009).
32. BIOE605 Bioengineering Graduate Program Laboratory Rotations, UMD (Fall 2009).
33. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD (Fall 2009).
34. ENES100 Introduction to Engineering Design, Engineering Undergraduate Programs, UMD (Fall 2009).
35. BIOE689 Biophotonics Imaging, Bioengineering Graduate Program, UMD (Fall 2009).
36. BIOE606 Bioengineering Graduate Program Laboratory Rotations, UMD (Spring 2010).
37. Molecular and Cellular Bioengineering, Research Experiences for Undergraduates (REU) Program UMD (Summer 2010).
38. BIOE605 Bioengineering Graduate Program Laboratory Rotations, UMD, (Fall 2010).
39. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD, (Fall 2010).
40. BIOE608 Bioengineering Seminar Series - How to write an effective research proposal, UMD, (Fall 2010).
41. BIOE606 Bioengineering Graduate Program Laboratory Rotations, UMD (Spring 2011).
42. GEMS297 Gemstone Program, UMD (Spring 2011).
43. Molecular and Cellular Bioengineering, Research Experiences for Undergraduates (REU) Program, UMD (Summer 2011)
44. BIOE605 Bioengineering Graduate Program Laboratory Rotations, UMD (Fall 2011)
45. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD (Fall 2011)
46. BIOE608 Bioengineering Seminar Series - How to write an effective research proposal, UMD (Fall 2011)
47. BIOE606 Bioengineering Graduate Program Laboratory Rotations, UMF (Spring 2012).
48. BCHM669d Special Topics in Biochemistry: Drug Discovery. Biochemistry Graduate Program, UMD (Fall 2012).
49. Latin-American Nanomedicine Course. Universidad Nacional de Quilmes. Potrero de los Funes, Argentina. (Fall 2012).
50. GEMS297 Gemstone Program, UMD (Spring 2013)
51. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD (Fall 2013)
52. CBMG688A Cell Biology and Molecular Genetics Graduate Laboratory Rotations, UMD (Fall 2013).
53. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD (Spring 2014).
54. BCHM669d Special Topics in Biochemistry: Drug Discovery. Biochemistry Graduate Program, UMD (Spring 2014).
55. BCHM669d Special Topics in Biochemistry: Drug Discovery. Biochemistry Graduate Program, UMD (Spring 2015).
56. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD (Spring 2016).
57. BIOE121 Biology for Engineers - Laboratory, Bioengineering Undergraduate Program, UMD (Fall 2016).
58. BIOE485 Capstone Design I: Entrepreneurship, Regulatory Issues, and Ethics, Team 10 (Improvement of percutaneous dilation tracheotomy device), UMD (Fall 2016).
59. BIOE486 Capstone Design II: Entrepreneurship, Regulatory Issues, and Ethics, Team 10 (Improvement of percutaneous dilation tracheotomy device), UMD (Spring 2017).

4.d. Advising: Academic.

Undergraduate:

Academic advisor to 20-30 undergraduate students per year in the Fischell Department of Bioengineering (2008 - 2017).

4.e. Advising: Research Direction.

Undergraduate:

1. Gajewski, Christine	Lab Assistant, College of General Studies, U. Pennsylvania, Fall 2004-Spring 2007.
2. Lam, Luke	Undergraduate Independent Study, Biochemistry major, School of Art and Sciences, University of Pennsylvania, Fall 2007-Spring 2008 (Graduated in June 2008 and went to U. Hawaii Medical School).
3. Ghaffarian, Rasa	Undergraduate Independent Study - Biology Honors Program, Nutrition major, College of Agriculture and Natural Resources, U.Maryland College Park, Jan. 2009-May 2010 (Was awarded a HHMI fellowship, Graduated with High Honors -thesis-; got admitted to the Bioengineering Graduate Program in U. Maryland (see below)).
4. Northrup, Laura	Research Experiences for Undergraduates Program, Bioengineering, U.Maryland College Park, May.2009-Aug. 2009. (Was awarded third place in AIChE Mid-America conference in 2010, graduated from Chemical Engineering U. Iowa and got admitted into the graduate program in the Department of Pharmaceutical Chemistry, University of Kansas).
5. Healey, Daniel	Research Experiences for Undergraduates Program, Bioengineering, U.Maryland College Park, May.2010-Aug. 2010. (Was awarded first place in the internal REU competition, Currently Pharmacy Graduate School in Washington State University).
6. Ansar, Maria	Undergraduate Independent Study – Cell Biology and Molecular Genetics Honors Program, CBMG and Biochemistry double major, U.Maryland College Park, Sep. 2010-Present. (Was awarded a HHMI fellowship, got High Honors and the P. Arne Hansen Award, and went to University of Texas Medical School for a MD/PhD).
7. Chelsea McKiernan	Research Experiences for Undergraduates Program, Bioengineering, U.Maryland College Park, May.2011-Aug. 2011. (Went to Bucknell University.)
8. Ghazal Cango	Undergraduate Independent Study - Bioengineering Honors Program, Bioengineering major, School of Engineering, U.Maryland College Park, Aug. 2011-Dec. 2012. (Graduated from the Bioengineering undergraduate program)
9. Kesshi Jordan	Undergraduate Independent Study - Bioengineering Honors Program, Bioengineering major, School of Engineering, U.Maryland College Park, Aug. 2011-Dec. 2011. (went to Graduate School in Bioengineering at U.C. Berkeley/U.C. San Francisco).
10. Rishi Shadha.	Undergraduate Independent Study, Cell Biology and Molecular Genetics major, U.Maryland College Park, Aug. 2012-2014 (went to medical school).
11. Donna Motabar	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Aug. 2012-Dec. 2012. (Graduated and got into the MEng. Bioengineering program)
12. Jeffrey Rappaport	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Aug. 2012-Spring 2014. (Was awarded a HHMI fellowship, Junior and Senior Outstanding Undergraduate Student, Engineering Leadership Award, and Engineering Undergraduate Research Award, Graduated and went to Thomas Jefferson MD/PhD program).
13. Michael Barbagallo	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Feb. 2013-2015 (graduated and went to industry).
14. Eden Paul	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jun. 2014-2015 (graduated in 2016 and went to graduate school).
15. Sauradeep Sinha	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jun. 2014-Jun.2015.
16. Austin Feng	Undergraduate Independent Study, Cell Biology and Molecular Genetics, U.Maryland Park, June. 2014-Jun.2016.
17. Joshua Kim	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jan. 2015-Dec.2016.
18. Gemstone Team “FORGET IT”: Taleeah Allen-Wright, Marta Cherpak, Hyun J Choi, Peter Fairbanks, Jonathan Huang, Karishma Labib, Megan McGuffey, Anna Patnaik, Ashwin Reddi, Shradha Sahani, Charles Urrutia. U.Maryland College Park, Sep. 2013-May 2016 (all team members graduated; their thesis was nominated for the Gemstone award).	
19. Ronelle Bautista	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jan. 2016-2017.
20 Allen Luk	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Sep. 2016-2018

21. Bareera Qamar	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jun. 2016-2018.
22. Andres Gonzalez	Undergraduate Independent Study, Bioengineering & Computer Sciences, U.Maryland College Park, Sep. 2016-2018
23. Vinay Velovolu	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Sep. 2017-2020
24. Sally Choi	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Sep. 2018-2019
25. Idrisa Rahman	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Sep. 2018-2020
26. Keerthana Srinivasan	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Sep. 2018-Jun. 2020
27. Michael Hildreth	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jan. 2017-2020
28. Milan Tump	Undergraduate Independent Study, Biology and Medical Laboratory Research, University of Applied Sciences in Leiden, The Netherlands, Sep.2018- May.2019. IBEC, Barcelona, Spain. (Got a, ERASMUS Undergraduate Fellowship)
29. Angela Lee	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jun. 2018-Jan 2020.
30. Lauren Hoorens	Undergraduate Independent Study, Bioengineering, U.Maryland College Park, Jun. 2018-Jun. 2019.
31. Andrew Saldavos	Undergraduate Independent Study, Chemical and Biomolecular Engineering U.Maryland College Park, Jun. 2018-Jan 2020.
32. Vy Pham	Undergraduate Independent Study, Chemical and Biomolecular Engineering U.Maryland College Park, Jun. 2018-Jun. 2021.
33. Idysha Perez	Undergraduate Independent Study, Biology and Medical Laboratory Research, University of Applied Sciences in Leiden, The Netherlands, Sep. 2019-Dec. 2020. IBEC, Barcelona, Spain. (Got an ERASMUS Undergraduate Fellowship)
34. Guillem Vives	Undergraduate Independent Study, Biology and Medical Laboratory Research, Universidad Autónoma de Barcelona, Sep. 2020-Feb.2021. IBEC, Barcelona, Spain.
35. Laura Escude	Undergraduate Practicum, Biotechnology Program, Instituto Químico Sarriá, Jun. 2021-Aug. 2021. IBEC, Barcelona, Spain.
36. Pau Garriga	Undergraduate Independent Study, Biotechnology Program, University Ramon LLull, Feb. 2021-Sep. 2021, IBEC, Barcelona. Spain.
37. Eloy Ruiz Torres	Undergraduate Independent Study, Nanoscience and Nanotechnology Program, Barcelona Autonomic University, Feb. 2022-Sep. 2022, IBEC, Barcelona. Spain.

Graduate:

Graduate students in rotation.

Bioengineering Graduate Program and Cell Biology and Molecular Genetics Program, UMD: a total of 17 students.

Master students.

1. Kumar, Kishan	Biotechnology, School of Engineering and Applied Science, University of Pennsylvania, 2007-2008 (got a Research Associate position in MDRx Research Inc., Philadelphia, PA).
2. Serrano, Daniel	Cell Biology and Molecular Genetics, UMD, 2009 –2010 (Got an NSF Graduate Research Fellowship, graduated in Dec. 2010, and enrolled in the BISI Doctorate Graduate Program in UMD).
3. Tsinas, Zois	Bioengineering Graduate Program, UMD 2012-2015. (graduated and got into the PhD program in Bioengineering).
4. Jana Simon	Biomedical Research Program, Universitat Pompeu Fabra, Barcelona, Spain 2019-2020 (graduated and started a PhD program)
5.Lan Nguyen	Miniaturized Biotechnologies Program, Technical University in Ilmenau, Germany., Feb. 2020-May. 2020. (Got an ERASMUS Scholarship)
6. Maria del Moral	Applied Materials-Chemistry Research Program, Universitat de Barcelona, Barcelona, Spain 2022 (graduated and started a PhD program).

7. Elena Haro	Molecular Biotechnology Program, Universitat de Barcelona, Barcelona, Spain 2022 (graduated and left for an industry position).

Doctoral students. (For other involvement in committees, see Service-University of Maryland below)

1. Hsu, Janet	Bioengineering Graduate Program, UMD, 2009-2014 (got admitted to the Future Faculty Program; Outstanding Graduate Research Award in Bioengineering; graduated and got a Scientific Research Officer position on DoD research programs).
2. Papademetriou, Jason	Bioengineering Graduate Program, UMD, 2009-2013 (graduated and went for a postdoc position in Boston University)
3. Serrano, Daniel	Biological Sciences Program, UMD, 2011-2014 (got a NIH diversity supplement; graduated and got a Research Faculty position in U. Maryland College Park).
4. Ghaffarian, Rasa	Bioengineering Graduate Program, UMD, 2011-2015 (Got an NSF Graduate Research Fellowships; graduated and got a Scientist position in Maryland start-up platform).
5. Manthe, Rachel	Bioengineering Graduate Program, UMD, 2012-Present. (Got an NSF NIH Graduate Research Fellowships; accepted in the Future Faculty Program; successfully defended her dissertation on April 2017, stayed in the lab as a postdoc, and got a position in a hospital in Ohio State).
6. Roki, Niksa	Bioengineering Graduate Program, UMD, 2016-Apr.2020. (defended his dissertation March 2020 and got a postdoctoral fellowship in Ohio State University)
7. Katia Maso	Department of Pharmaceutical Sciences, Universita degli Studi di Padua, Italy; Spring 2017 (graduated and got an award by the Italian chapter of the Controlled Release Society).
8. Jing Chen	China Pharmaceutical University, University in Nanjing, China; Spring+Fall 2017 (graduated and got a faculty position in this University)
9. Tommaso Tedeschini	Department of Pharmaceutical Sciences, Universita degli Studi di Padua, Italy; Spring 2020 as an international PhD student (Graduated).
10. Maximilian Loeck	PhD student, Biotechnology and Bioengineering, University of Barcelona, Oct. 2018-Sep.2022. IBEC, Barcelona, Spain. (Got a Graduate Fellowship from La Caixa Foundation, then graduated and went for a position in industry)
11. Jan Hasa	PhD student, Biotechnology and Bioengineering, University of Barcelona, Jun. 2019-Nov. 2020. IBEC, Barcelona, Spain. (Got a Graduate Fellowship from the Agency for Management of University and Research Grants -AGAUR-, Catalonia Government but left for an industry position)
12. Josep Fumadó	PhD student, Biotechnology and Bioengineering, University of Barcelona, Oct. 2020-Sep.2021, IBEC, Barcelona, Spain. (Got a Graduate Fellowship from the Spanish Ministry but left for a PhD program in Ireland)
13. Marco Vigo	PhD student, Biotechnology and Bioengineering, University of Barcelona, Oct. 2020-Oct.2023, IBEC, Barcelona, Spain. (Got a Graduate Fellowship from the Spanish Ministry for Science & Innovation, Spain; graduated and looked for an industry position)
14. Marina Placci	PhD student, Biotechnology, University of Barcelona, Sep. 2021-Present, IBEC, Barcelona, Spain. (Got a Graduate Fellowship from the Spanish Ministry for Science & Innovation, Spain)

Postdoctoral:

1. Garnacho, Carmen	Dept. of Pharmacology, School of Medicine, University of Pennsylvania, Jun.2004-Jul. 2008 (moved with Muro to UMD from Jul. 2008-Nov. 2008; Currently Associate Professor and Vice Dean, Medical School, Seville University, Seville, Spain).
2. Meng, Ming	Dept. of Pharmacology, School of Medicine, University of Pennsylvania, Oct.2006-July 2008 (Currently Associate Professor, Hebei University Medical School, Baoding, Hebei Province, China).
3. Calderon, Andres	Co-mentored by Dr. Eckmann, Dept. of Anesthesiology, School of Medicine, University of Pennsylvania, Jul. 2006-Jul. 2008 (Subsequently an Instructor-School of Engineering, University of Pennsylvania, and currently a Biomechanical and Biomedical Engineer in Consulting Engineers & Scientists, Inc).

4. Bhowmick, Tridib	Institute for Biosciences and Biotechnology Research, UMD, Dec.2008-May 2013. (Currently Associate Professor of Bioengineering in the National Institute of Technology, Tripura, India).
5. Mane, Viraj	Postdoctoral, Institute for Biosciences and Biotechnology Research, UMD, Oct.2009-Oct.2012. (Went for a Technical Analyst III in Analytical Services Inc., working as a contractor for DoD).
6. Melani Solomon	Postdoctoral, Institute for Biosciences and Biotechnology Research, UMD, Aug.2015-Jun 2018. Continued as an Assistant Research Professor, IBBR, College Park, MD.
7. Edgar Perez	Postdoctoral, Institute for Biosciences and Biotechnology Research, UMD, Sep.2015-Sep. 2016 (left for a nanotechnology startup company in Oviedo, Spain).
8. Kevin Grey	Postdoctoral, Institute for Biosciences and Biotechnology Research, UMD, Jun. 2018-Oct. 2019. IBBR, College Park, MD (went to an industry position)
9. Emeema Muntimadugy	Postdoctoral, Institute for Biosciences and Biotechnology Research, UMD, Feb .2019-April 2020, IBBR, College Park, MD.
10. Dencho Gugutkov	Postdoctoral, Institute for Bioengineering of Catalonia, Apr. 2018-Jan. 2019. IBEC, Barcelona, Spain.
11. Vladimir Mulens	Postdoctoral, Institute for Bioengineering of Catalonia, Dec. 2018-Dec. 2019. IBEC, Barcelona, Spain.
12. Belen Perez	Postdoctoral, Institute for Bioengineering of Catalonia, Apr. 2020-Sep 2020. IBEC, Barcelona, Spain.
12. Marcelle Abreu	Postdoctoral, Institute for Bioengineering of Catalonia, Apr. 2019-Jun. 2021. IBEC, Barcelona, Spain.
13. Belen Perez	Postdoctoral, Institute for Bioengineering of Catalonia, Apr. 2020-Dec.2022. IBEC, Barcelona, Spain.