

## **CURRICULUM VITAE**

**Ciara O Sullivan, B.Sc., Ph.D.**

## 1. PERSONAL DETAILS

Name: Ciara K. O' Sullivan  
Address: Nanobiotechnology & Bioanalysis Group, University Rovira i Virgili, Tarragona, Spain  
E-mail: [ciara.osullivan@urv.cat](mailto:ciara.osullivan@urv.cat)  
Sex: Female  
Date of Birth: 25-04-1971

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## 2. ACADEMIC RECORD

1988-1992 BSc Analytical Sciences, 2nd Class Honours, Grade 1, Dublin City University  
1993-1996 PhD in Biotechnology (Thesis title: Biosensors for direct monitoring of hazardous gases in the environment, Officially awarded June 1998), Cranfield University  
(Thesis Directors: Prof. A.P.F. Turner and Prof. M. Karayannis - co-directed PhD between Cranfield University (UK) and University of Ioannina (Greece))

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## 3. PROFESSIONAL EXPERIENCE

Position	Location	Dates
Research Assistant	Cranfield University, England	1993-1996
Group Leader	University College Cork, Ireland	1996-1999
Postdoctoral Researcher	Bayer Corporation, USA	2000
Marie Curie Researcher	Universitat Rovira i Virgili, Spain	2000-2002
Ramon y Cajal Researcher	Universitat Rovira i Virgili, Spain	2002-2003
ICREA Research Professor	Universitat Rovira i Virgili, Spain	2003-

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## 4. TEACHING ACTIVITIES (SINCE 2003)

- University of Western Cape, Cape Town, South Africa, Nanobiotechnology Course as part of National Nanoscience Postgraduate Teaching and Training Programme (NNPTTP), a collaborative initiative between the University of the Western Cape (UWC), University of Johannesburg (UJ), University of the Free State (UFS), the Nelson Mandela Metropolitan University (NMMU) and the Department of Science and Technology, 30-hour intensive course, 2012-current
- Universitat de Las Andes, Bogota, Colombia, Bionanotechnology; From Bench to Marketplace, MSc Intensive teaching course, 30h, 2014
- Designed course contents for Masters in Nanoscience and Nanotechnology and established new masters together with F. Xavier Rius in 2002 - >15 students registered annually
- Topics in Nanobiotechnology – 7,5 ECTS course focused on the different aspects of nanobiotechnology (including fundamental molecular biology, -omics, microfabrication techniques, microsystems, Lab-on-a-chip, microarrays, nanoparticles, nanotubes, quantum dots, tissue engineering, Next Gen Sequencing, drug delivery), 2003-current
- Surfaces & Nanostructures - 5 ECTS intensive course focused on micro and nanofabrication, smart materials, fuel cells, solar energy, nanotechnology for energy, nanotoxicology, 2011-present
- Project Thesis – 3 ECTS course on the tools required for successful execution and management of research projects
- Organiser of the seminar programme of 'Graduate studies in Process and Chemical Engineering', 2004-2007
- Organiser of the seminar programme 'Sescalades Campus Seminar Series', 2006-2007

## 5. OTHER ACTIVITIES

- Evaluation for ERC, FET, H2020, FP7, French Agence Nationale de Recherche, Academy of Sciences Finland, Italian Ministry of Education, Universities and Research, Irish Research Council, Canadian Research Board
- Visiting Professor at University of Newcastle, 2015-2018
- Visiting Professor at University of Western Cape, 2016-2021
- Associate Editor, Analytical Chemistry, 2020-2024
- Associate Editor, ACS Measurement Science Au, 2020-2022
- Executive Editor, Analytical Biochemistry, 2016-2019
- Member of Editorial Board, Analytical & Bioanalytical Chemistry
- Member of Advisory Board NESTA Inducement Prize
- Member of Advisory Board EPSRC IRC 'Early Warning Sensing Systems for Infectious Diseases';
- Internationally funded research projects with All India Institute of Medical Sciences (India), Universidad de Valparaiso (Chile), University of the Western Cape (South Africa), Mekele University (Ethiopia), Universidad Peruana Cayetano Heredia (Peru),
- International co-direction of PhD students (University of Western Cape, University of Philippines at Diliman) with signed bilateral agreements to facilitate dual registration
- Member of consortium of Marie Curie funded International Research Staff Exchange Scheme for international exchange and secondment of senior and junior researchers
- Host of >60 Erasmus students at undergraduate and masters level
- Signed bilateral agreements with 15 international universities for research exchange visits

## 6. PUBLICATIONS,

H-INDEX, MARCH 2024, GOOGLE SCHOLAR (56)

ORCID ID: <https://orcid.org/0000-0003-2603-2230>

1. Joaquim Peraire, Graciano Garcia-Pardo, Silvia Chafino, Alba Sanchez, Maryluz Botero-Gallego, Montserrat Olona, Sonia Espineira, Laia Revert, Vasso Skouridou, Oscar M. Peir, Frederic Gomez-Bertomeu, Francesc Vidal, Ciara K. O'Sullivan and Anna Rull, Immunoglobulins in COVID-19 pneumonia: from the acute phase to the recovery phase, (2024) *European Journal of Medical Research* 29:223
2. Nerissa A. Molejon, Catherine M. Lapada, Vasso Skouridou, Analiza P. Rollon, Mohammed S. El-Shahawi, Abdulaziz S. Bashammakh, Ciara K. O'Sullivan, Selection of G-rich ssDNA aptamers for the detection of enterotoxins of the cholera toxin family, , 2023, *Analytical Biochemistry*, 669, 115118
3. Ortiz, M., Jauset-Rubio, M., Trummer, O., Foessl, I., Kodr, D., Acero, J.L., Botero, M.L., Biggs, P., Lenartowicz, D., Trajanoska, K., Rivadeneira, F., Hocek, M., Obermayer-Pietsch, B., O'Sullivan, C.K. Generic Platform for the Multiplexed Targeted Electrochemical Detection of Osteoporosis-Associated Single Nucleotide Polymorphisms Using Recombinase Polymerase Solid-Phase Primer Elongation and Ferrocene-Modified Nucleoside Triphosphates (2023) *ACS Central Science*, 9 (8), pp. 1591-1602.
4. Daniel Torregrosa, Miriam Jauset-Rubio, Raquel Serrano, Marketa Svobodová, Guillermo Grindlay, Ciara K. O'Sullivan, Juan Mora, Ultrasensitive determination of  $\beta$ -conglutin food allergen by means an aptamer assay based on inductively coupled plasma mass spectrometry detection, 2023, *Analytica Chimica Acta*, 1252, 341042
5. Kodr, D., Ortiz, M., Sýkorová, V., Yenice, C.P., Lesnikowski, Z.J., O'Sullivan, C.K., Hocek, M., Normalized Multipotential Redox Coding of DNA Bases for Determination of Total Nucleotide Composition (2023) *Analytical Chemistry*, 95 (34), pp. 12586-12589.
6. Yenice, C.P., Chahin, N., Jauset-Rubio, M., Hall, M., Biggs, P., Dimai, H.-P., Obermayer-Pietsch, B., Ortiz, M.,

O'Sullivan, C.K., Semiautomated Electrochemical Melting Curve Analysis Device for the Detection of an Osteoporosis Associated Single Nucleotide Polymorphism in Blood, (2023) *Analytical Chemistry*, 95 (38), pp. 14192-14202.

7. Koena L. Moabelo, Teresa M. Lerga, Miriam Jauset-Rubio, Nicole R. S. Sibuyi, Ciara K. O'Sullivan, Mervin Meyer and Abram M. Madiehe, A Label Free Gold Nanoparticles-Based Optical Aptasensor for the Detection of Retinol Binding Protein 4, *Biosensors* (2022), 12 (12), 1061
8. Xhensila Shkembi, Mary Luz Boter, Vasso Skouridou, Miriam Jauset-Rubio, Marketa Svobodova, Pablo Ballester, Abdulaziz S. Bashammakh, Mohammad S. El-Shahawi, Abdulrahman O. Alyoubi, Ciara K. O'Sullivan, Novel nandrolone aptamer for rapid colorimetric detection of anabolic steroids, (2022) *Analytical Biochemistry*, 658, 114937
9. Ortiz M.; Jauset-Rubio M., Kodr D., Simonova A., Hocek M.; O'Sullivan C.K., Solid-phase recombinase polymerase amplification using ferrocene-labelled dNTPs for electrochemical detection of single nucleotide polymorphisms, (2022) *Biosensors and Bioelectronics*, 198, 113825
10. Chahin N., Escobar-Nassar S., Osma J., S. Bashammakh A., AlYoubi A., Ortiz M., O'Sullivan C.K., Low-Cost Platform for Multiplexed Electrochemical Melting Curve Analysis, (2022), *ACS Measurement Science Au*, 2, 2, 147–156
11. Gaiani, G., Cucchi, F., Toldrà, A., Andree K.B., Rey M., Tsumuraya T., O'Sullivan C.K., Diogène, J., Campàs, M.; Electrochemical biosensor for the dual detection of *Gambierdiscus australes* and *Gambierdiscus excentricus* in field samples. First report of *G. excentricus* in the Balearic Islands, (2022), *Science of the Total Environment*, 806, 4, 1. 150915
12. Svobodova M., Skouridou V., Jauset-Rubio M., Viéitez I., Fernández-Villar A., Cabrera Alvargonzalez J., Poveda E., Benavent Bofill C., Sans T., Bashammakh A., O. Alyoubi A., O'Sullivan C.K., Aptamer Sandwich Assay for the Detection of SARS-CoV-2 Spike Protein Antigen, (2021), *ACS Omega*, 6, 51, 35657–35666
13. Shkembi, X., Skouridou, V., Svobodova, M., Leonardo L., Bashammakh A., Alyoubi A., Campàs, M., O'Sullivan, C.K., Hybrid Antibody-Aptamer Assay for Detection of Tetrodotoxin in Pufferfish, (2021), *Analytical Chemistry*, 93 (44), 14810-14819
14. Ortiz M., Jauset-Rubio M., Skouridou V., Machado D., Viveiros M., G. Clark T., Simonova A., Kodr D., Hocek M., O'Sullivan C.K., Electrochemical Detection of Single-Nucleotide Polymorphism Associated with Rifampicin Resistance in *Mycobacterium tuberculosis* Using Solid-Phase Primer Elongation with Ferrocene-Linked Redox- Labeled Nucleotides, (2021), *ACS Sensors*, 2021, 6, 12, 4398–4407
15. Codina H., Vieitez I., Gutierrez-Valencia A., Skouridou V., Martínez C., Patiño L., Botero-Gallego M., Trujillo- Rodríguez M., Serna-Gallego A., Muñoz-Muela E., Bobillo M, Pérez A., Cabrera-Alvar J., Crespo M, O'Sullivan C.K., Ruiz-Mateos E, Poveda E.; Elevated anti-sars-cov-2 antibodies and il-6, il-8, mip-1 $\beta$ , early predictors of severe covid- 19, (2021), *Microorganisms* 9 (11), 2259
16. Jauset-Rubio, M., Ortiz, M., O'Sullivan, C.K., Solid-Phase Primer Elongation Using Biotinylated dNTPs for the Detection of a Single Nucleotide Polymorphism from a Fingerprick Blood Sample, (2021), *Analytical Chemistry*, 93 (44), 14578-14585
17. Kodr D., Yenice C., Simonova A., Pavlović Saftić D., Pohl R., Sýkorová V., Ortiz M., Havran L., Fojta M., Lesnikowski Z., O'Sullivan C.K., Hocek M., Carborane- or Metallacarborane-Linked Nucleotides for Redox Labeling. Orthogonal Multipotential Coding of all Four DNA Bases for Electrochemical Analysis and Sequencing, (2021), *Journal of the American Chemical Society*, 143, 7124-7134
18. Gaiani G., Toldrà A., Andree K., Rey M., Diogène J., Alcaraz C., O'Sullivan C.K., Campàs M., Detection of *Gambierdiscus* and *Fukuyoa* single cells using recombinase polymerase amplification combined with a sandwich hybridization assay, (2021), *Journal of Applied Phycology* 33(4), 2273-2282

19. AL-Madhagi, S., O'Sullivan, C.K., Prodromidis, M.I., Katakis, I., Combination of ferrocene decorated gold nanoparticles and engineered primers for the direct reagentless determination of isothermally amplified DNA, (2021), *Microchimica Acta*, 188 (4), 117
20. Kojima, K., Juma, K.M., Akagi, S., Hayashi, K., Takita, T., O'Sullivan, C.K., Fujiwara, S., Nakura, Y., Yanagihara, I., Yasukawa, K., Solvent engineering studies on recombinase polymerase amplification, (2021), *Journal of Bioscience and Bioengineering*, 131 (2), 219-224.
21. Magriñá, I., Ortiz, M., Simonova, A., Hocek, M., O'Sullivan, C.K., Forster, R.J., Ferrocene-containing DNA monolayers: Influence of electrostatics on the electron transfer dynamics, (2021), *Langmuir*, 37 (11), 3359–3369
22. Shkemi, X., Svobodova, M., Skouridou, V., Bashammakh, A.S., Alyoubi, A.O., O'Sullivan, C.K., Aptasensors for mycotoxin detection: A review, (2021), *Analytical Biochemistry*, 114156
23. O'Sullivan, C.K., Mairal, T., Jauset-Rubio, M., Svobodova, M., Skouridou, V., Esposito, V., Virgilio, A., Galeone, A., Aptamers against the  $\beta$ -conglutin allergen: Insights into the behavior of the shortest multimeric (intra)molecular DNA G-quadruplex, (2021), *International Journal of Molecular Sciences*, 22 (3), 1150, 1-15.
24. Ortiz, M., Botero, M.L., Fragoso, A., O'Sullivan, C.K., Amperometric Detection of Creatinine in Clinical Samples Based on Gold Electrode Arrays Fabricated Using Printed Circuit Board Technology, (2020), *Electroanalysis*, 32(12), 3054–3059.
25. Toldrà, A., O'Sullivan, C.K., Diogène, J., Campàs, M., Detecting harmful algal blooms with nucleic acid amplification-based biotechnological tools, (2020) *Science of the Total Environment*, 749, 141605.
26. Gaiani, G., Leonardo, S., Tudó, À., Toldrà, A., Rey, M., Andree, K.B., Tsumuraya, T., Hiram, M., Diogène, J., O'Sullivan, C.K., Alcaraz, C., Campàs, M., Rapid detection of ciguatoxins in *Gambierdiscus* and *Fukuyoa* with immunosensing tools, (2020), *Ecotoxicology and Environmental Safety*, 204, 111004
27. Lerga, T.M., Skouridou, V., Bermudo, M.C., Bashammakh, A.S., El-Shahawi, M.S., Alyoubi, A.O., O'Sullivan, C.K., Gold nanoparticle aptamer assay for the determination of histamine in foodstuffs, (2020), *Microchimica Acta*, 187 (8), art. no. 452.
28. Ahmed, N., AL-Madhagi, S., Ortiz, M., O'Sullivan, C.K., Katakis, I., Direct electrochemical detection of enzyme labelled, isothermally amplified DNA, (2020) *Analytical Biochemistry*, 598, art. no. 113705
29. Kortli, S., Jauset-Rubio, M., Tomaso, H., Abbas, M.N., Bashammakh, A.S., El-Shahawi, M.S., Alyoubi, A.O., Ben-Ali, M., O'Sullivan, C.K., *Yersinia pestis* detection using biotinylated dNTPs for signal enhancement in lateral flow assays" (2020), *Analytica Chimica Acta*, 1112, 54-61.
30. Leonardo, S., Gaiani, G., Tsumuraya, T., Hiram, M., Turquet, J., Sagristà, N., Rambla-Alegre, M., Flores, C., Caixach, J., Diogene, J., O'Sullivan, C., Alcaraz, C., Campàs, M., Addressing the analytical challenges for the detection of ciguatoxins using an electrochemical biosensor, (2020), *Analytical Chemistry*, 92 (7), 4858–4865
31. Gooding, J., O'Sullivan, C.K., Sensors and Industry Virtual Issue, (2020) *ACS Sensors*, 5 (11), 3293-3294
32. Ahmad, W., Mohammed, G.I., Al-Eryani, D.A., Saigl, Z.M., Alyoubi, A.O., Alwael, H., Bashammakh, A.S., O'Sullivan, C.K., El-Shahawi, M.S., Biogenic Amines Formation Mechanism and Determination Strategies: Future Challenges and Limitations, (2020), *Critical Reviews in Analytical Chemistry*, 50 (6), 485-500.
33. Bakker, E., O'Sullivan, C.K., Cremer, P.S., Giants in Sensing: A Virtual Issue to Celebrate Five Years of ACS Sensors, (2020), *ACS Sensors*, 5 (5), 1249-1250.

34. Simonova, A., Magriňá, I., Sýkorová, V., Pohl, R., Ortiz, M., Havran, L., Fojta, M., O'Sullivan, C.K., Hocek, M., Tuning of Oxidation Potential of Ferrocene for Ratiometric Redox Labeling and Coding of Nucleotides and DNA, (2020) *Chemistry - A European Journal*, 26 (6), 1286-1291.
35. Toldrà, A., Furones, M.D., O'Sullivan, C.K., Campàs, M., Detection of isothermally amplified ostreid herpesvirus 1 DNA in Pacific oyster (*Crassostrea gigas*) using a miniaturised electrochemical biosensor, (2020) *Talanta*, 207, art. no. 120308.
36. Gaiani G., O'Sullivan C.K. and Campàs M., Magnetic Beads in Marine Toxin Detection: A Review, (2019), *Magnetochemistry*, 5 (62)

37. Magriñá, I., Jauset-Rubio, M., Ortiz, M., Tomaso, H., Simonova, A., Hocek, M., O'Sullivan, C.K., Duplex Electrochemical DNA Sensor to Detect *Bacillus anthracis* CAP and PAG DNA Targets Based on the Incorporation of Tailed Primers and Ferrocene-Labeled dATP, (2019), *ACS Omega*, 4 (26), 21900-21908.
38. Jauset-Rubio, M., Botero, M.L., Skouridou, V., Aktas, G.B., Svobodova, M., Bashammakh, A.S., El-Shahawi, M.S., Alyoubi, A.O., O'Sullivan, C.K., One-Pot SELEX: Identification of Specific Aptamers against Diverse Steroid Targets in One Selection, (2019), *ACS Omega*, 4 (23), 20188-20196.
39. Toldrà, A., O'Sullivan, C.K., Campàs, M., Detecting Harmful Algal Blooms with Isothermal Molecular Strategies, (2019), *Trends in Biotechnology*, 37 (12), 1278-1281.
40. Toldrà, A., Alcaraz, C., Diogène, J., O'Sullivan, C.K., Campàs, M., Detection of *Ostreopsis cf. ovata* in environmental samples using an electrochemical DNA-based biosensor, (2019), *Science of the Total Environment*, 689, 655-661.
41. Mairal, T., Skouridou, V., Jauset-Rubio, M., Tomaso, H., El-Shahawi, M.S., Bashammakh, A.S., Al-Youbi, A.O., O'Sullivan, C.K., High affinity aptamer for detection of the biogenic amine histamine, (2019), *Analytical Chemistry*, 91 (11), 7104-7111.
42. Skouridou, V., Tomaso, H., Rau, J., Bashammakh, A.S., El-Shahawi, M.S., Alyoubi, A.O., O'Sullivan, C.K., Duplex PCR-ELONA for the detection of pork adulteration in meat products, (2019), *Food Chemistry*, 287, 354-362.
43. Magriñá, I., Toldrà, A., Campàs, M., Ortiz, M., Simonova, A., Katakis, I., Hocek, M., O'Sullivan, C.K., Electrochemical genosensor for the direct detection of tailed PCR amplicons incorporating ferrocene labelled dATP, (2019), *Biosensors and Bioelectronics*, 134, 76-82.
44. Toldrà, A., Alcaraz, C., Andree, K.B., Fernández-Tejedor, M., Diogène, J., Katakis, I., O'Sullivan, C.K., Campàs, M., Colorimetric DNA-based assay for the specific detection and quantification of *Ostreopsis cf. ovata* and *Ostreopsis cf. siamensis* in the marine environment, (2019), *Harmful Algae*, 84, 27-35.
45. Rath, C., Burger, J., Norval, L., Kraemer, S.D., Gensch, N., van der Kooi, A., Reinemann, C., O'Sullivan, C., Svobodova, M., Roth, G., Comparison of different label-free imaging high-throughput biosensing systems for aptamer binding measurements using thrombin aptamers, (2019) *Analytical Biochemistry*, 583, art. no. 113323.
46. Jauset-Rubio, M., Tomaso, H., El-Shahawi, M.S., Bashammakh, A.S., Al-Youbi, A.O., O'Sullivan, C.K., Duplex Lateral Flow Assay for the Simultaneous Detection of *Yersinia pestis* and *Francisella tularensis*, (2018), *Analytical Chemistry*, 90, (21), 12745-12751.
47. Luong Esperitu, C.A., Justo, C.A.C., Jauset-Rubio, M., Svobodova, M., Bashammakh, A.S.O., Al-Youbi, A.O., Rivera, W., Rollon, A., O'Sullivan, C.K., Aptamer selection against a *Trichomonas vaginalis* adhesion protein for diagnostic applications, (2018), *ACS Infectious Diseases*, 4, 1306-1315.
48. M. Ortiz, A. M. Debela, C. Méthivier, S. Thorimbert, B. Hasenknopf, and C. K. O'Sullivan, Stable carboxylate-terminated gold surfaces produced by spontaneous grafting of an alkyltin compound, (2018), *Chemistry – A European Journal*, 24, 43, 11177-11184.
49. A. Toldrà, M. Jauset-Rubio, K. B. Andree, M. Fernández-Tejedor, J. Diogène, I. Katakis, C. K. O'Sullivan, and M. Campàs, Detection and quantification of the toxic marine microalgae *Karlodinium veneficum* and *Karlodinium*

armiger using recombinase polymerase amplification and enzyme-linked oligonucleotide assay, (2018), *Analytica Chimica Acta*, 1039, 140-148.

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51. N. Chahin, L. A. Uribe, A. M. Debela, S. Thorimbert, B. Hasenknopf, M. Ortiz, I. Katakis, and C. K. O'Sullivan, Electrochemical primer extension based on polyoxometalate electroactive labels for multiplexed detection of single nucleotide polymorphisms, (2018), *Biosensors and Bioelectronics*, 117, 201-206.
52. S. Leonardo, J. Kilcoyne, I. A. Samdal, C. O. Miles, C. K. O'Sullivan, J. Diogène, and M. Campàs, Detection of azaspiracids in mussels using electrochemical immunosensors for fast screening in monitoring programs, *Sensors and Actuators*, (2018), B: Chemical, 262, 818-827.
53. O. Mayboroda, I. Katakis, and C. K. O'Sullivan, Multiplexed isothermal nucleic acid amplification, (2018), *Analytical Biochemistry*, 545, 20-30.
54. I. M. Lobato and C. K. O'Sullivan, Recombinase polymerase amplification: basics, applications and recent advances, (2018), *TRAC: Trends in Analytical Chemistry*, 98, pp. 19-35.
55. Leonardo, S., Toldrà, A., Rambla-Alegre, M., Fernández-Tejedor, M., Andree, K.B., Ferreres, L., Campbell, K., Elliott, C.T., O'Sullivan, C.K., Pazos, Y., Diogène, J., Campàs, M., Self-assembled monolayer-based immunoassays for okadaic acid detection in seawater as monitoring tools, (2018), *Marine Environmental Research*, 133, 6-14.
56. Jauset Rubio, M., El-Shahawi, M., Bashammakh, A.S., Alyoubi, A.O. and O'Sullivan, CK, Advances in aptamer based lateral flow assays, (2017), *TRAC: Trends in Analytical Chemistry*, 97, 385-398
57. Saeed, A., Acero-Sanchez, JL, O'Sullivan, CK, Nooredeen Abbas, M., DNA biosensors based on gold nanoparticles-modified graphene oxide for the detection of breast cancer biomarkers for early diagnosis, (2017) *Bioelectrochemistry*, 118, 91-99
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61. Leonardo, S., Garibo, D., Fernández-Tejedor, M., O'Sullivan, C.K., Campàs, M., Addressed immobilization of biofunctionalized diatoms on electrodes by gold electrodeposition, (2017), *Biofabrication*, 9, art. no.015027



62. Skouridou V., Schubert T., S Bashammakh A., S El-Shahawi M., O Alyoubi A., O'Sullivan C.K., Aptatope mapping of the binding site of a progesterone aptamer on the steroid ring structure, (2017), *Analytical Biochemistry*, 531, 8-11
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## BOOK CHAPTERS

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## 7. CONTRIBUTIONS TO CONFERENCES

### 7. INVITED TALKS

1. Ciara K. O'Sullivan, *Cool tools in Microbiotech*, Microbiotec21 conference, November 26, 2021
2. Ciara K. O'Sullivan, *Second international conference on Molecular Diagnostics and Biomarker Discovery*, 2-4 May 2017
3. Ciara K. O' Sullivan, *Ultrasensitive  $\beta$ -conglutin detection combining aptamer detection, isothermal amplification and lateral flow assays*, *Aptamers in Bordeaux*, June 24-25th, 2016

4. Ciara K. O' Sullivan, Electrochemical Solid-Phase Recombinase Polymerase Amplification, Molecular Diagnostics, April 15-16th, 2015, Lisbon, Portugal
5. Ciara K. O' Sullivan, Sensors for monitoring liver and kidney function, Sensors in Medicine, 24-25th March 2015, London, UK
6. Ciara K. O' Sullivan, High affinity truncated aptamer against the anaphylactic toxin  $\beta$ -conglutin (Lup-an-1), Aptamers 2014, 24-25th March, 2014, Oxford, UK
7. Ciara K. O' Sullivan, Liposomal nanoreactors for nanotemplating of homogenous gold and palladium nanoparticles, Conference on Green Nanotechnology and Nanomedicine, School of Public Health, University of the Western Cape, July 14-15th, 2014, South Africa
8. Ciara K. O' Sullivan, Design, synthesis and characterization of Polyoxometalates for use as electrochemical labels for detection of single nucleotide polymorphisms using electrochemical array based primer extension, 224th ECS Meeting, 27th October – 1st November 2013, San Francisco, USA
9. Ciara K. O' Sullivan, Rapid Detection of Proteins and Nucleic Acids Using Electrochemical Biosensor Arrays Integrated Within Microsystems for Monitoring of Autoimmune Diseases, ElecNano5, 15-17th May, 2013, Bordeaux, France
10. Ciara K. O' Sullivan, Coeliac Disease Management Monitoring and Diagnosis using Biosensors and an Integrated Chip System, 19th Annual Congress of Paediatric Gastroenterologists, 13-15th March, 2012, Moscow, Russia
11. Ciara K. O' Sullivan, Biological and biomimetic receptors for electrochemical devices, 13th International Conference on Electroanalysis, June 20-24th, 2010, Gijón, Spain
12. Ciara K. O' Sullivan, Development of an integrated microsystem for the multiplexed detection of protein markers in serum using electrochemical immunosensors, Optical MEMS & Nanophotonics, 9-12th August, 2010, Sapporo, Japan
13. Ciara K. O' Sullivan, Intelligent sensing platforms - connectivity and linking with electronic health records, SMI Point of Care Diagnostics, 27 & 28th October, 2008
14. Ciara K. O' Sullivan, Smart biodiagnostic systems for improved healthcare, 25th Intelligent Sensing Programme, Knowledge Transfer Network, 22nd October 2008
15. Aptasensors - new molecular tools with a shining future? First International Symposium on Electrochemistry, South Africa, 9-11th July, 2008
16. 'Isolation of foetal cells from maternal plasma' Invited Address as Dissemination Activity at the European Science Open Forum, München, July 2006
17. Nanobiotecnología: Investigación Actual y Perspectivas Futuras, O'Sullivan, C.K., La Caixa, Tarragona, Setmana de la Ciencia 2003

## 8. B POSTERS AND ORAL PRESENTATIONS

1. Josep Lluís Acero, Ciara O'Sullivan, Direct electron transfer of pyrroloquinoline quinone-dependent glucose dehydrogenase (PQQ-GDH) based on carbon nano-onions-modified glassy carbon electrodes, 20th HFSP Awardees Meeting, 5-8 July 2021
2. Ciara O'Sullivan, Detection of single nucleotide polymorphisms via solid-phase primer elongation with ferrocene labelled nucleotides, JSBBA symposium 2021, 20 March, 2021
3. N. Chahin, L. A. Uribe, A. M. Debela, S. Thorimbert, B. Hasenknopf, M. Ortiz, I. Katakis, and C. K. O'Sullivan, Electrochemical primer extension based on polyoxometalate electroactive labels for multiplexed detection of single nucleotide polymorphisms, 28th Anniversary World Congress on Biosensors, 12-15 June, 2018
4. Acero Sanchez, J. L., Henry, O. Y. F., Joda, H., Werne Solnestam, B., Kvastad, L., Johansson, E., Akan, P., Lundeberg, J., Lladach, N., Ramakrishnan, D., Riley, I. and O'Sullivan, C. K., Electrochemical genetic profiling of single cancer cells, 28th Anniversary World Congress on Biosensors, 12-15 June, 2018



5. Ciara K. O'Sullivan, Paper Analytical Diagnostics Exploiting Nanostructured Materials for Rapid, Cost-Effective and Reliable Detection of Biogenic Amines, Mycotoxins and Food Alteration for Advanced Food Safety Screening at the Point-of-Need, Gordon Research Conference, 3-8 June, 2018
6. Ciara O'Sullivan, Selection, characterisation and analytical application of DNA aptamers against the anaphylactic allergen, Lup-an 1-conglutin, XVIIth Symposium on Chemistry of Nucleic Acid Components, 4-9 June, 2017
7. Markéta Svobodová, Teresa Mairal, Miriam Jauset-Rubio, Abdulaziz S. Bashammakh, Mohammad S. El-Shahawi, Abdulrahman O. Alyoubi and Ciara K. O'Sullivan, Rapid Detection of DNA using a combination of tailed primers, isothermal amplification and lateral flow assay, ACS Fall Meeting, Philadelphia, 21-25th August 2016
8. Markéta Svobodová, Vasso Skouridou, Miriam Jauset-Rubio, Thomas Schubert, Abdulaziz S. Bashammakh, Mohammad S. El-Shahawi, Abdulrahman O. Alyoubi and Ciara K. O'Sullivan, Evaluation of affinity and specificity of aptamers selected against 17 $\beta$ -estradiol, ACS Fall Meeting, Philadelphia, 21-25th August 2016
9. Markéta Svobodová, Teresa Mairal, Miriam Jauset-Rubio, Abdulaziz S. Bashammakh, Mohammad S. El-Shahawi, Abdulrahman O. Alyoubi and Ciara K. O'Sullivan,  $\beta$ -conglutin detection using aptamer lateral flow assays, ACS Fall Meeting, Philadelphia, 21-25th August 2016
10. Markéta Svobodová, Teresa Mairal, Miriam Jauset-Rubio, Abdulaziz S. Bashammakh, Mohammad S. El-Shahawi, Abdulrahman O. Alyoubi and Ciara K. O'Sullivan, Ultrasensitive  $\beta$ -conglutin detection combining aptamer detection, isothermal amplification and lateral flow assays, ACS Fall Meeting, Philadelphia, 21-25th August 2016
11. Jonathan Rio del Sabaté, Olena Mayboroda, Ioanis Katakis and Ciara K. O' Sullivan, Solid phase isothermal amplification, ACS Fall Meeting, Philadelphia, 21-25th August 2016
12. Samuel Dulay, Sandra Julich, Herbert Tomasso, Rainer Gransee, Ioanis Katakis and Ciara K. O' Sullivan, Multiplexed Molecular Detection of Bioterrorist Agents Using Microsystem Integrated Electrochemical Genosensor Array, ACS Fall Meeting, Philadelphia, 21-25th August 2016
13. Anna-Spehar Delézé, Sandra Julich, Sergio Martinez, Claudia Gärtner, Rainer Gransee and Ciara K. O' Sullivan, Electrochemiluminescence genosensor for multiplex detection of pathogen species, SPIE 2015, April 20-24th 2015, Baltimore USA
14. Mabel Torrens, Mayreli Ortiz and Ciara K. O' Sullivan, ECL detection of francisella tularensis DNA target based on "switch-on-off" strategy with surface confinement of the system using diazonium salt as a molecular linker, SPIE 2015, April 20-24th 2015, Baltimore USA
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148. A piezoelectric immunosensor flow through system for detection of food pathogens, Suesmel, S., Vaughan, R., O'Sullivan, C.K., and Guilbault, G.G., Society for Analytical Chemistry 1999 (SAC '99), Royal Society of Chemistry, Dublin, Ireland, 1999
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152. Biosensors – theory, fundamentals and applications, C.K. O' Sullivan, Formación continuada– Training for Trainers, Cork, Ireland, 1999
153. Novel immunosensors with enhanced detection limits for GM-CSF in process streams and *Listeria monocytogenes* in milk, C.K. O Sullivan, E. Crowley, G.G. Guilbault, International Conference on Analytical Chemistry (SAC '99), Dublin, Ireland, 1999

154. Biosensors – theory, fundamentals and applications, C.K. O' Sullivan, National Meeting of Secondary School Teachers in Science, Wexford, Ireland, 1999
155. Electrochemical metallisation of carbon electrodes and their application to biosensors, C.K. O Sullivan, P.J. O Connell, G.G. Guilbault, Fifth World Congress on Biosensors, Berlin, Germany, 1998
156. Interference free biosensor for detection of lysine as a marker of quality control in food processing, C.K. O Sullivan, P.J. O Connell, S.C. Kelly and G.G. Guilbault, EU Workshop, Brussels, Belgium, 1998
157. Development of a selective immunoassay for MDMA, C.K. O Sullivan, D. Butler and G.G. Guilbault, National Forum on Science Against Drugs, Dublin, Ireland, 1998
158. Electrochemical metallisation of carbon electrodes and their application to biosensors, C.K. O Sullivan, P.J. O Connell, G.G. Guilbault, Eirelec 98, Howth, Ireland, 1998
159. Development of an immunoassay for detection of okadaic acid in mussel samples (Winner of prize for best poster), Kreuzer, M., O'Sullivan, C.K. and Guilbault, G.G., Biosensors for environmental monitoring:technology evaluation, Cork, Ireland, 1998
160. Optical oxygen sensing, Fitzgerald, M., Papkovsky, D.B., O'Sullivan, C.K. and Guilbault, G.G., Biosensors for environmental monitoring:technology evaluation, Cork, Ireland, 1998
161. An optical sensor for Aflatoxin, C.K. O Sullivan, R. Carter, M. Jacobs, G. Lubrano, and G.G. Guilbault, American Chemical Society Spring Meeting, San Francisco, EEUU, 1997
162. Development of a gas-phase biosensor for direct detection of sulphur dioxide, O'Sullivan, C.K., Turner, A.P.F. and Karayannis, M.I., Chemistry and Education, University of Ioannina, Greece, 1995
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164. Development of a gas-phase biosensor for direct detection of sulphur dioxide, O'Sullivan, C.K., Turner, A.P.F. and Karayannis, M.I., Biosensors for environmental monitoring, London, England, 1994

## **8. RESEARCH PROJECTS**

### **8.1. INTERNATIONAL RESEARCH PROJECTS**

Controlling cellular biochemistry with electronic signals – a step towards bioelectronic hybrids, Human Science Frontier Programme, RGP0002/2018, 2018-2021, \$300000

Cost-Effective Tools for Mycotoxin Testing, 01-01-2017 to 31-12-2021, King Abdulaziz University, 550000€.

Ultrasensitive, extremely rapid lateral flow assays exploiting nanoparticles for the detection of biogenic amines, detection of adulteration of food with meat products and identification of contaminating meat and viruses, 01-12-2016 to 31-05-2020, King Abdulaziz University, 500000€,

Aptamers for detection of anabolic steroids, 01-09-2015 to 30-08-2018, King Abdulaziz University, 425000€,

### **8.2. EU FINANCED PROJECTS**

Personalised Medicine by using an Advanced Point-of-Care Tool for Stratified Treatment in High Risk Cardiovascular Patients (PoCCardio), European Commission, HORIZON-HLTH-2022-101095432, 1/12/2023-30/11/2028, 1.358.239,42€

Sustainable and green electronics for circular economy (SUSTRONICS), European Commission, HORIZON-JU-RIA-101112109, 1/06/2023-31/05/2026, 284.361,50€

A Community-based HPV screening implementation in Low-Income countries, European Commission (CHILI), Contract No. 964418, 2021-2026, 257.676,44€

Early detection of cervical cancer in hard-to-reach populations of women through portable and point-of-care HPV testing (ELEVATE), European Commission, Contract n°825747, 1/1/2019-31/12/2024, 341.802,50€

PoC in-office device for identifying individuals at high risk of Osteoporosis and osteoporotic fracture (PoCOsteo), 2017-2021, European Commission, Contract n°767325, 1/10/2017-30/4/2022, 601.291,25€

Micro/nanosensors for early cancer warning system - diagnostic and prognostic information (SmartCancerSens), 2013-2016, European Commission, 318053, €63.400,00.

The lab-free CBRN detection device for the identification of biological pathogens on nucleic acid and immunological level as lab-on-a-chip system applying multisensor technologies (Multisense), 2011-2015, European Commission, 261810, €694.467,00.

ICT-enabled, cellular artificial liver system incorporating personalized patient management and support (D-Liver), 2011-2015, European Commission, 287596, €782.062,00.

Magnetic Isolation and molecular Analysis of single Circulating and disseminated tumor cells on chip (Miracle), 2010-2014, European Commission, 257746, 961.434,00.

Coeliac disease - management, monitoring and diagnosis using biosensors and an integrated chip system, 2008-2012, European Commission, 216031, €1.270.000, 00.

Smart Integrated Diagnostics Systems for Healthcare, 2005-2009, FP6-2004-IST-NMP-2-016817, €780.408,96.

Integrated microsystem for the Magnetic Isolation and Analysis of Single Cells for Oncology Diagnostics and Therapy Follow-up, 2006-2009, FP6-2005-IST-027652, €521.815,00.

Isolation of Foetal Cells: A Nanomolecular Approach, 2005-2008, European Commission, NEST-Adventure-4977, €340.000,00.

Special Non-invasive Advances in Foetal & Neonatal Evaluation, 2004-2006, European Commission, LSH-2004-503243, €562.946,37.

Quantification of coeliac disease toxic gluten in foodstuffs using a chip system with integrated extraction, fluidics and biosensoric detection (CD-CHEF), step 2 of exploratory award EXAW-1999-01542, 2003-2006, European Commission, QLK1-CT-2002-02077, €339.190,00.

SMILE: Rapid Stroke Marker Detection via Immunosensors utilising Labelless Electrochemical and Resonant Mass Detection, 2003-2005, European Commission, QLK6-CT-2002-02583, €165.031,00.

The application of integrated biosensors with antibody and macrocyclic receptor libraries in the measurement of algal cells and toxins in water, 1999-2002, European Commission, €170.000,00.

Biosensors for seafood toxins, 1996-2000, European Commission, 160.000,00 Irish Punt

Biosensor stability, 1996-1999, European Commission, 60.000,00. Irish Punt

Biosensors for environmental monitoring, 1996-1999, European Commission, 80.000,00. Irish Punt

Biosensors for the quality control of foods, 1996-1999, European Commission, 130.000,00 Irish Punt

Prussian-blue based oxidase biosensors, 1998-1999, European Commission, 40.000,00 Irish Punt

Celiac Disease HLA Typing using microfabricated genosensarray (CD-HLAsens)–Olivier Henry, 2010-2013, European Commission, 256395, €45.000,00.

Development of an electrochemical Molecular Beacon based DNA Chip for Coeliac disease predisposition diagnosis (CD-MB) -Valerio Beni, 2010-2012, European Commission, 256542, €30.000,00.

Electrochemiluminescent biosensor for screening of coeliac disease – Mayreli Ortiz, 2010-2012, European Commission, 237011, €161.899,59.

Reagentless Electrochemical and Fluorescent Biosensor Formats for Detection of Coeliac Disease Toxic Gluten (Gliadins and Glutenins) in Raw and Processed Foodstuffs (GluSens)- Veli Cengiz, 2008-2010, European Commission, 221310, €209.385,57.

Nano-particles: their application in the development of electrochemical molecular beacon biosensors (NanoSens)- Valerio Beni, 2008-2010, European Commission, 220928, €151.936,08

Recurring breast cancer early genetic diagnostic on a chip (RBCE-GenoDiagnoSens) - Olivier Henry, 2008-2010, European Commission, 221198, €159.166,60.

Marie Curie Fellowship - Development of biosensors systems for determination of predisposition to, diagnosis and monitoring of coeliac disease, 2000-2002, European Commission, QLK3-CT-2000-51246, €119.608,00.

### **8.3. NATIONALLY FUNDED PROJECTS**

#### **SPANISH FUNDED**

Herramientas biotecnológicas basadas en células, receptores y aptámeros para la detección de ciguatoxinas y tetrodotoxinas (CELLECTRA), Ministerio de Economía y Competitividad, PID2020-112976RB-C22, 2021-2023, 242,000€

Pruebas serológicas rápidas para la detección combinada de IgG e IgM contra SARS-CoV-2, Instituto de Salud Carlos III, COV20/00823, 2020-2021, 65.000€

Dispositivos bioanalíticos para la detección rápida y rentable de Gambierdiscus y ciguatoxinas, Ministerio de Economía y Competitividad, BIO2017-87946-C2-1-R, 2018-2020, 242.000€. (Ioanis Katakis and Alex Fragoso PI)

Seasensing: Microsystems for rapid, reliable and cost-effective detection of toxic microalgae on-site and in real-time (Co-PI with I. Katakis), Ministerio de Economía y Competitividad, BIO2014-56024-C2-1-R, 157300€, 01-12-2015 to 31-12-2017

Rapid & Cost-effective screening of cardiomyopathies exploiting electrochemical melting curve analysis and electrochemical DNA sequencing (Cardioscreening), 2012-2015, Ministerio de Ciencia e Innovación. Subdirección General Proyectos de Investigación, BIO2011-25369, €145.200,00.

Non-invasive prenatal diagnosis of haemoglobinopathies and monitoring of pre-eclampsia: isolation and genetic characterisation of circulating cell-free fetal dna (AFRONIPPED), 2011-2012, Ministerio de Asuntos Exteriores y de Cooperación, C/032861/10, €20.000,00.

Separación y caracterización genética de ADN fetal extracelular circulante para el diagnóstico prenatal, 2009-2012, Ministerio de Ciencia e Innovación, ACI2009-0840, €99.000,00.

Improved methods for measurement of gluten in food, 2010-2010, Ministerio de Educación y Ciencia, SAB2009-0082, €31.400,00.

Aptameros de alta afinidad para la detección de saxitoxina en moluscos contaminados con mareas rojas paralizantes, 2010-2010, Ministerio de Asuntos Exteriores y de Cooperación, A/024377/09, €23.000,00.

Aptameros de alta afinidad para la detección de saxitoxina en moluscos contaminados con mareas rojas paralizantes, 2009-2010, Agencia Española de Cooperación Internacional, A/016300/08, €20.000,00.

Biosensores electroquímicos 'Reagentless' y fluorescentes para la detección de gluten tóxico (gliadinas y gluteninas) en alimentos crudos y elaborados en enfermos celíacos.(GLUTACATCH), 2006-2009, Ministerio de Educación y Ciencia, BIO2006-11236, €141.000,00.

Aislamiento y caracterización genética del DNA fetal - Teresa Mairal, 2008-2008, Ministerio de Asuntos Exteriores y de Cooperación, CF247, €3.000,00.

Utilización de los equipos de RMN e instalaciones del Laboratorio de RMN de la Universidad de Barcelona - Teresa Mairal, 2008-2008, Ministerio de Ciencia y Tecnología, €1.764,00.

Utilización de los equipos de RMN e instalaciones del Laboratorio de RMN de la Universidad de Barcelona - Alessandro Pinto, 2008-2008, Ministerio de Ciencia y Tecnología, €811,00.

Qualitification of Coeliac Disease toxic gluten in foodstuffs using a Chip system with integrated Extraction, Fluidics and biosensoric detection (Cd-Chef), 2003-2006, Dirección General de Investigación, AGL2002-10959-E, €18.400,00.

Gludetox: Detección e inactivación de péptidos inmunogénicos, 2004-2006, Ministerio de Ciencia y Tecnología, FIT-010000-2004-146, €63.766,00.

Voltammetric study of the interaction of chloroquine with DNA, 2004-2005, Dirección General de Universidades. Ministerio de Educación y Ciencia, SAB2003-0050, €30.800,00.

Rapid Stroke marker detection via immunosensors utilising labelless electrochemical and resonant mass detection (Smile), 2003-2005, Dirección General de Investigación, BIO2002-10958-E, €9.100,00.

Preparación de proyectos europeo 7ºPM: D-Liver, CancerNanosens y Multisense, 2011-2011, Ministerio de Ciencia e Innovación, SAF2011-14300-E, €5.500,00.

Ayuda complementaria al proyecto CD-MEDICS, 2008-2011, Ministerio de Ciencia e Innovación, SAF2008-01741-E, €10.000,00.

Preparacion De Proyectos Del 7PM: Cardioscreen Y Miracle, 2010-2010, Ministerio de Ciencia e Innovación, BIO2010- 10574-E, €6.000,00.

Preparacion De Proyectos Del 7PM: Multipath Y Cardiomics, 2010-2010, Ministerio de Ciencia e Innovación, SAF2010-12388-E, €3.000,00.

Preparación de proyectos 7PM: Bio-Liver. Objecte ICT-2009.5.1, 2009-2009, Ministerio de Ciencia e Innovación, BIO2009-06971-E, €2.000,00.

Accion complementaria: preparación de proyectos 7PM: Micromorph, Fetalfish Y Lucatas, 2008-2009, Ministerio de Ciencia e Innovación, SAF2008-01745-E, €3.000,00.

Complementary National Funds MASCOT, 2006, Ministerio de Educación y Ciencia, BIO2006-26116-E, €52.000,00.

Complementary National Funds SMARTHealth, 2006, Ministerio de Educación y Ciencia, BIO2006-26103-E, €67.000,00.

Complementary National Funds SAFER, 2005, Ministerio de Educación y Ciencia, BIO2005-23741-E, €34.000,00.

Complementary National Funds, 2005, Ministerio de Educación y Ciencia, BIO2005-24821-E, €4.000,00.

Complementary National Funds, 2005, Ministerio de Educación y Ciencia, BIO-2005-25023-E. €5.000,00

Financial assistance for preparation of EU proposals, 2002, Programa Nacional de Biotecnología, BIO2002-11791-E, €8.000,00.

## **CATALAN FUNDED**

Lateral flow assays for the rapid detection of IgG, IgA and IgM antibodies associated with infectious and autoimmune diseases, Fundació URV, 2021, R2B2021-13, 10.000€

Grup de recerca en la interfície físico/biológica (Interfibio), 01-05-2017 to 31-12-2021, Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR), Contract nº 2017 SGR 1517, 36.000€.

Integrated system for prenatal diagnostics, Agència per a la Competitivitat de l'Empresa (ACCIÓ), TECSPR15-1-0041, 107789€, 07-01-2015 to 06-01-2017

Photo selex against Fc region of IgG subclasses, Agència per a la Competitivitat de l'Empresa (ACCIÓ), TECSPR14-2-0015, 94647€, 18-05-2015 to 06-09-2017

Grup de recerca en la interfície físico/biológica (Interfibio), Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR), Contract nº 2014 SGR 1498, 45000€, 01-01-2014 to 30-04-2017

Valorització de la tecnologia d'aïllament de ADN fetal de plasma matern per la detecció de trastorns de l'embaràs., Universitat Rovira i Virgili, Programa R2B, 11000€, 01-01-2015 to 31-12-2015

Isolation of Fetal DNA from maternal plasma for detection of pregnancy disorders, Valtec Agència per a la Competitivitat de l'Empresa (ACCIÓ), 79219€, 01-12-2013 to 31-12-2016

Grup de recerca en la interfície físico/biológica (Interfibio), 2009-2013, Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR), 2009 SGR 139, €46.800,00.

Aptamer based detection of the lupine food allergen (Aptalup), 2012-2013, Caixa d'Estalvis i Pensions de Barcelona (Recercaixa), 016740, €71.319,19.

Beques de recerca per a professors investigadors visitants a Catalunya 2007 (PIV)- Veli Cengiz Ozalp, 2008-2009, Departament d'Universitats, Recerca i Societat de la Informació. Generalitat de Catalunya, 2007PIV00032, € 27.600,00.

Early toxin alert using an integrated microsystem for the simultaneous detection of multiple seafood toxins in molluscs, 2009-2009, Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR), 2009LID2-C-52, €3.105,42.

Interfície físico/biològica (INTERFIBIO), 2005-2008, Direcció General de Recerca, 2005SGR-00851, €52.598,93.

Rapid stroke marker detection via immunosensors utilising labelless electrochemical and resonant mass detection (SMILE) Modalitat A, 2005-2005, Consell Interdepartamental de Recerca i Innovació Tecnològica, 2004CRED 10003, €29.999,48.

Àrea d'Enginyeria i Gestió del Mediambient i la Biotecnologia, 2002-2005, Direcció General de Recerca, 2002SGR-00050, €45.000,00.

Functional, Intelligent (Bio) nanotechnological Architectures, 2003-2004, Fundació Privada Institució Catalana de Recerca i Estudis Avançats, 2002ICREA-001, €39.018,28.

Desenvolupament d'un aptasensor per la detecció de seqüències tòxiques del gluten utilitzant sondes de DNA (aptàmers), 2004-2004, Consell Interdepartamental de Recerca i Innovació Tecnològica, RED2003 00035, €30.000,00.

## **IRISH FUNDNG**

Immunosensor for the rapid detection of cardiac Troponin I, 1998-2000, Enterprise Ireland, ST/1998/519, 65.000,00 Irish Punt.

Dual analyte immunosensor for the determination of ovulation in cows, 1998-2000, Enterprise Ireland, 73.000,00. Irish Punt.

Rapid test for diagnosis of acute pancreatitis using an immunosensor for trypsin activating peptide, 1998-2000, Enterprise Ireland, HE/1998/271, 70.000,00 Irish Punt.

Biosensor for detection of GM-CSF in process streams, 1997-1999, Schering Plough, S.A., 60.000,00 Irish Punt.

#### 8.4. CONTRACT RESEARCH

Development of a lateral flow assay for the aptamer-based detection of Dengue Fever, 2021-2022, Achiko AG, €105.050

Sequencing and data analysis for next generation sequencing for succinic acid aptamer selection, 2021, Technical University Of Denmark, €4.967,05

COV-ASSURED. Desarrollo de un kit de diagnóstico rápido del virus SARS-CoV-2 basado en cromatografía de flujo latera, 2020-2021, LincBiotech S.L., €72.240

Desarrollo de una pareja de aptámeros contra la proteína del nucleocapside de SARS-COV-2, 2020, LincBiotech S.L., € 36.360

Testing of aptamers for SARS-CoV-2 and preparation of aptamer-gold nanoparticle conjugates for demonstration of proof-of-concept, 2020, Achiko AG, €31.922,40

Evaluation of Microsystem Development, 2019, Microfluidic Chipshop, €10.000€

PhotoSELEX for selection of aptamers against IgG1, IgG2, IgG3, 2015, 2Bind GmbH, €5,000

PhotoSELEX for selection of aptamers against IgG, 2015, 2Bind GmbH, €10,000

Characterisation of terpenoids dye pigments, 2013-2014, Novus International, €20.000,00

Design and implementation of 50 screen printed gold electrodes, 2011, Micro2gen Ltd., €4.700,00.

Feasibility of utilising microbial and chemical methods for clean-up of olive mill waste waters, 2001-2002, Enviro Europa, S.A.,€15.000,00.

Feasibility of developing systems for diagnosis and screening of coeliac disease and detection of gluten in foodstufs, 2001-2002, Trace Biotech AG, €10.000,00.

Feasibility of Stroke Marker Biosensors/FAST, 2001-2001, Canag Diagnostics AB,€10.000,00.



## 9. STUDENT THESES

### Ph.D. Theses

1. Xhensila Skembi, Molecular tools for the rapid and cost-effective detection of small molecules, (2021), Universitat Rovira I Virgili, Spain
2. Nassif Chahin, Multiplexed detection of SNPs using electrochemical melting curve analysis, (2021), Universitat Rovira I Virgili, Spain
3. Ivan Magriña Lobato, Development of electrochemical DNA sensors based on the incorporation of ferrocene labelled dATP (2019), Universitat Rovira I Virgili, Spain
4. Anna Toldrà, DNA based assays and biosensors for the detection of toxic microalgae and viruses in the marine environment, (2019), Co-directed with Dr. Mònica Campàs, Universitat Rovira I Virgili, Spain
5. Lauren Schwartz, Aptamer selection against GFR $\alpha$ -1 for its application in the prognosis of breast cancer, (2019), Co-direction with Prof. Mervin Meyer, University of Western Cape, South Africa
6. Sallam Al-maghadi, Strategies for rapid and reagentless electrochemical detection of RPA products, (2018), Co-direction with Dr. Ioanis Katakis, Universitat Rovira I Virgili
7. Resmond Reaño, Selection of Aptamer Against Mycobacterium tuberculosis Specific Antigen – MTb (2018), Co-direction with Dr. Marilou Dalida, University of the Philippines at Diliman
8. Sandra Leonardo, Development and application of colorimetric assays and electrochemical biosensors in seafood safety (2018), Co-direction with Dr. Mònica Campàs, IRTA
9. Christian Adam Esperitu, Aptamer selection for a Trichomonas vaginalis Adhesin protein 65 for diagnostic applications (2017), Co-direction with Dr. Analiza Rollon, University of the Philippines at Diliman
10. Olena Mayboroda, Development of diagnostic platform for detection of biological agents and toxic microalgae using isothermal amplification (2017), Co-direction with Dr. Ioanis Katakis
11. Josep Lluís Acero Sanchez, Study of surface chemistry strategies to enhance the electrochemical detection of proteins and DNA markers (2017)
12. Miriam Jauset Rúbio, Selection of high affinity and specific aptamer and its' use in different applications for the detection of the anaphylactic b-conglutin allergen, (2016)
13. Jonathan Sabaté del Río, DNA Biosensors Based on Integrated Amplification-Detection Strategies, (2015)
14. Mabel Torréns del Valle, Molecular and supramolecular surface modification tools for highly sensitive amperometric and electrochemiluminescent biosensors (2015)
15. Samuel Bacena Dulay, *Development of electrochemical biosensors for the detection of biological warfare agents* (2014)
16. Ahmed Mehdi Debela, A. *Bioanalytical applications of polyoxometalates using molecular tools for detection of DNA and SNPs in primer extension*, (2014)
17. Gael Clergeaud, Liposomes as versatile tools: nanoreactors, membrane models and drug delivery carriers, (2014)

18. Alessandro Pinto, Real-time aptaPCR: a novel approach exploiting nucleic acid aptamers for ultrasensitive detection of analytes in clinical diagnostics and in food analysis (2012)
19. Laia Civit Pitarch, Development of electrochemical biosensors and solid-phase amplification methods for the detection of human papillomavirus genes (2012)
20. Pedro Nadal Polo, Selection, characterisation and analytical applications of dna aptamer against the anaphylactic toxic allergen, b-conglutin, lup an 1 (2012)
21. Hamdi Abdelazim Osman Joda, Detection of coeliac disease predisposition using dna biosensor arrays(2012)
22. Markéta Svobodová, Selection of aptamers against prostate specific antigen for diagnostic and therapeutic applications (2012)
23. Rukan Genç, Encapsulating lipid structures: preparation and application in biosensors, nanoparticles synthesis and controlled release (2011)
24. Hany Nassef, Temperature Modulated Genosensor for Detection of Cystic Fibrosis Mutations (2010)
25. Hossam Nassef, Bottom-up surface engineering for the construction of (Bio) Sensing systems: design strategies and analytical applications (2009)
26. Tesfaye Refera Soreta, Electrochemically deposited metal nanostructures for application in genosensor(2009)
27. Frank Jeyson Hernández, Design of biosensors exploiting conformational changes in biomolecules tesis doctoral (2009),
28. Philip O' Connell, Development of an Interferent Free Amperometric Biosensor for Determination of L-lysine in Food (2002)
29. Robert Vaughan , Quartz Crystal Microbalance (QCM) Sensor for the Detection of Bacillus cereus' (2002)
30. Tina O' Regan, Biosensor array for rapid detection of myocardial infarction, (2002)
31. Mark Kreuzer, Development of Generic Immunosensors for Clinical and Environmental Analysis, (2000)
32. Elizabeth Crowley, Immunosensor for on-line detection of GM-CSF in industrial purification process(1999)
33. Susan Kelly, Biosensor for lactate dehydrogenases for detection of myocardial infarction (1999)

## MSc Students

1. Christine Aubrey Justo, Application of aptamers for the detection of *Trichomonas vaginalis*, (2018), Co-direction with Prof. Windell Rivera, University of the Philippines at Diliman
2. Laura Andrea Uribe, Multiplexed electrochemical detection of single nucleotide polymorphisms using polyoxymetalate labeled ddNTPs, (2016)
3. Santiago Escobar, Microsystem integrating peltier for high resolution melting curve analysis, (2016)
4. Sallam Al-Maghadi, Electrochemiluminescent detection of biogenic amines, (2014)
5. Laura Pol, Selection of aptamers against cotinine and hydroxy cotinine, (2014)
6. Nouran Yehia, Direct Double Strand DNA Detection Through Homology Recombination Mediated DNA Triplex Formation, (2013)
7. Miriam Llaó, Semi-conductive DNA-polymer hydrogel with gold nanoparticles for the detection of cancer DNA in microfluidics, (2013)
8. Shesmia Krishna, Isolation and Characterization of Autoantibodies for Celiac Disease Patient Serum Sample Analysis, (2013)
9. Isidre Torroja, Electrochemical Melting Curve Analysis, (2013)
10. Ransford Acheampong, Electrochemiluminescent biosensor for detection of auto-antibodies associated with celiac disease, (2012)
11. Elham Baghervand, Isolation and genetic characterisation of circulating cell-free fetal DNA, (2012)
12. Lorena Barbera Campos, Breast and prostate cancer DNA microarray, (2012)
13. Candice Rassie, SPR and fluorimetric studies of the lupin aptamer, (2012)
14. Lindsay Wilson, Supramolecular platform for the detection of HCG, (2012)
15. Taye Zewdu, Gold nanoparticle based molecular beacons for cystic fibrosis detection, (2010)
16. Mabel Torrens, Electrochemiluminescent biosensor for screening of nucleic acid, (2010)
17. Gael Clergeaud, Green synthesis of gold nanoparticles using glycerol incorporated nanosized liposomes, (2010)
18. Tesfaye Refera Soreta, Electrochemically Deposited Metals on Glassy Carbon for Nanostructuring of Substrates for Self Assembled Monolayers of Alkanethiols, (2008)
19. Hany Abdel Hady Nasef, Qualitative Genosensor for Detection of the DF508 Cystic Fibrosis Mutation, (2008)
20. Arcan Güven, A Novel Liposome Preparation Method for Use in Biosensor Systems for Signal Enhancement, (2007)
21. Josep Lluís Acero, BIACORE studies for optimisation of biosensor performance, (2007)
22. Mary-Luz Botero, Development of ELISA techniques for gluten detection, (2007)

23. M<sup>a</sup>Carmen Bermudo, ELISA-compatible extraction of gluten from raw and processed foods, (2005)
24. Alexandre Restrepo Boland, Approaches towards ultrasensitive, reagentless, washless, electrochemical immunosensor platform (2004)
25. Philip O'Connell, Development and Production of Cardiac Marker Immunosensors for the Confirmation of Myocardial Infarction. Optimisation of an L-lysine Enzyme Electrode and Development of a Chemically Modified Electrode for L-Ascorbic Acid in Foods (2001)
26. Robert Vaughan, Piezoelectric Immunosensors for Food Pathogens (2001)
27. Mark Kreuzer, Development of Generic Immunosensors for Clinical and Environmental Analysis (2000)
28. Elizabeth Crowley, Immunosensor Development. Application to Granulocyte-Macrophage Colony-Stimulating Factor and Listeria Monocytogenes Detection (1999)
29. Susan Kelly, Amperometric Biosensors Application to Clinical and Food Analysis (1999)
30. Martin Fitzgerald, Nondestructive monitoring of oxygen profiles in packaged foods using phase-fluorimetric oxygen sensor, (1999)
31. Philip Canty, Electrochemiluminescent immunosensor for detection of prostate specific antigen, (1999)
32. Conor Cronin, Rapid Interferent-Free Assay for the Determination of LD-1 in Biological Samples, (1999)
33. Kärsten Fährnich, Redox-cycling type electrochemiluminescence in aqueous medium. A new principle for the detection of proteins labeled with a ruthenium chelate, (1998)
34. Jonathan Boveniser, The Detection of Pseudomonas Aeruginosa using the Quartz Crystal Microbalance, (1997)

### **Exchange MSc Students**

1. Aykut Bilir, High resolution melting curve analysis, (2016)
2. Margaret O' Sullivan, Selection of aptamers against progesterone, (2015)
3. Kieran Feeney, Isolation and Characterization of IgA autoantibodies against tissue transglutaminase, (2015)
4. Elaine O'Regan, Development of an aptamer based biosensor for the detection of the lupin potential allergen beta conglutin, (2011)
5. Niamh Dowling, Preparation of different types of ELISA assays. (2011)
6. Laura Ward, Study and development of new surface nanostructures for the realization of sensitive and labels DNA biosensors, (2011)

7. Elaine Martin, Direct Immobilization of DNA and/or antibodies on carbonaceous electrodes via the electrochemical reduction of their diazonium salts, (2010)
  8. Lis Ni Chiobhain, Electrochemical sensor for Coeliac Disease Predisposition Diagnosis, (2010)
  9. Paul Barry, Design and characterize liposomes for maximal encapsulation of reported molecules, (2010)
  10. Deirdre Murphy, Characterization of the prepared liposomes by different techniques, (2009)
  11. Sinead Kirwan, Preparation and study of DNA biosensors towards the realization of an electrochemical DNA microarray, (2009)
  12. Sheena Stack, Development of ELISA for detection of glutenins, gliadins and hydrolysates, (2009)
  13. Deirdre Courtneane, Development of an electrochemical HLA typing chip for the evaluation of Celiac disease predisposition, (2009)
  14. Marion O' Doherty, Evaluation of methods for liposome preparation, (2006)
  15. Paul Griffin, ELISA for detection of coeliac disease toxic gluten in foodstuffs, (2004)
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