Viviana Scognamiglio

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https://www.researchgate.net/profile/Viviana_Scognamiglio/

Present position :

- Researcher

Short CV :

2002 : Degree in Molecular Biology at the Faculty of Science MM.FF.NN. at the University "Federico II" of Naples
2003 - 2004 : grants from BioTekNet within the project "Esperti in Applicazioni Industriali delle Biotecnologie", at Institute of Protein Biochemistry, CNR of Naples
2004 - 2008 : grants within a PhD project in Industrial Biotechnology for the development of optical biosensors for the detection of glucose for diabetic patients for biomedical application, at Institute of Protein Biochemistry, CNR of Naples
2008 : PhD in Industrial Biotechnology at University "Federico II" of Naples
2008 : fellowship within MULTITASK project for the development of optical biosensors for agrofood application, at Institute of Crystallography, CNR of Rome
2008 - 2010 : researcher contract within FILAS grants "art. 41 comma 1 LR 9 del 17/02/2005" for the realisation of a biosensor/bioreactor for nutraceutic application (BIO-NUTRA project) at Institute of Crystallography, CNR of Rome
2010 - 2011 : researcher contract within SENSBIOSYN project grants for the realisation of electro-optical biosensors for nutraceutic application, at Institute of Crystallography, CNR of Rome
2011 – on going : permanent position as researcher at Institute of Crystallography, CNR of Rome

Research Activity :

The researcher has experience in biochemistry and biophysics for purification and characterisation of proteins by Fluorescence Spectroscopy and Circular Dichroism, in the development of electrochemical-optical biosensors for the detection of analytes with environmental, agrifood and biomedical interest. The researcher shows skills in screening, characterisation and immobilisation of bioreceptors, fluorescence labelling, biosensor prototype validation, tests on real samples.

In particular, the researcher realised:

- optical biosensing systems for the detection of glucose for diabetic patients, to be applied in diagnostic and biomedical field, based on fluorescence spectroscopy technique;

- optical biosensing systems for the detection of gluten for celiac patients, to be applied in diagnostic and biomedical field, based on FRET (Fluorescence/Forster Resonance Energy Transfer) technique;

- electrochemical biosensors for the detection of pollutants in water and food to be applied in environmental and agrifood fields, based on amperometric technique and screen-printed electrodes (SPEs);

- combined electrochemical-optical biosensors for the follow-up of food quality and safety, for the detection of food components and contaminants to be applied in agrifood sector and to

evaluate suitability of bioremediation processes, based on gold microelectrodes arrays (MEAs);

- optical bioassays and biosensors for the detection of chemical warfare agents and their simulants, to be applied in security field;

- amperometric and optical biosensing systems for the detection of antioxidant substances for nutraceutic application.

Projects

COST | European network for algal-bioproducts (EUALGAE ES1408 COST ACTION) - link project site: www.eualgae.eu - link page Viviana Socgnamiglio: http://eualgae.eu/working-groups/wg-3/

2017. ERANETMED - Call for research proposals on Environmental challenges and solutions for vulnerable communities RQ3-2016 “Climate/demographic change” and Environment. Title: “Integrated nanotechnologies for sustainable sensing water and sanitation” (NanoSWS). Coordinator: F. Arduini (Tor Vergata), Responsible: Viviana Scognamiglio.

2016. Prin 2016 - MIUR. Securing and ensuring sustainable use of agriculture waste, co- and by-products: an integrated analytical approach combining mass spectrometry with health effect-based biosensing. Unità di ricerca di Prof. Moscone Dinia Danila Palma (Università Tor Vergata) - Coordinatore: Prof. Roda Aldo (Università di Bologna). 2016. MIUR-DAAD Joint Mobility Program (PPP Italien). Rapid detection of salmonella using a smart multiplexed impedimetric paper-based sensor. Unità di ricerca di Dr. Fabiana Arduini (Università Tor Vergata) - Coordinatore: Prof. Olfa Kanoun (Technische Universität Chemnitz, Germania).

2013-2016. PRNA 11.3.2013, n. 417. Ministero dell’Istruzione, dell'Università e della Ricerca. Titolo: Physiological, biochemical and transcriptomic adaptive responses to harmful UV radiation and temperature increases in Antarctic meiofaunal organisms: a walk from genes to organisms.

2011-2015. COST Action TD1102: “Photosynthetic proteins for Biotechnological applications: biosensors and biochips. Acronimo: PHOTOTECH.

2014. Adesione al Functional Food Network (FUFONET™). Dipartimento Scienze Bio-Agroalimentari.

2013-2014. Progetto BioTTasa – Trasferimento Tecnologico e integrazione di Biotecnologie per

la Salute, l'Alimentazione e l'Ambiente. Ministero dello Sviluppo Economico, Bando RIDITT.

2010-2012. MICROBIOSIS "Sistema integrato di micro-nano biosensori per il monitoraggio remoto della contaminazione da pesticidi e metalli pesanti nelle falde acquifere del Lazio" FILAS.

2009-2012. "Sistema biosensoristico per la determinazione di contaminanti pericolosi per la salute umana in prodotti agro-alimentari". Acronym: BIOAL. Filas; prot. N. 27/2009 del 15/01/09.

2009-2011. EU FP7-SME-2008-1, SENSBIOSYN Biosensors and Sensors for the industrial biosynthesis process of widely used commercial antioxidants: nutraceuticals as additives for food and aquaculture promoting public health and safety". ID: 232522.

2009-2011. "Bio-sensor for Effective Environmental Protection and Commercialization – ENhanced. Acronym: BEEP-C-EN, EU Call FP7-SME-2008-1 ID: 232082. Partecipante e responsabile della commissione di trasferimento tecnologico.

2008-2010. MULTIBIOPLAT "Una nuova piattaforma biotecnologia per biosensori multifunzionali" Ministero dello Sviluppo Economico, ETB-2007-34.

2007-2010. BIO-NUTRA "Realizzazione di un bireattore automatizzato" FILAS.

2006-2009. EU FP6, Priority 5, Food quality and safety. NUTRA-SNACK. Ready to eat food for breakfast and sport activity with high content of nutraceutics reducing a disease risk and promoting public health.

2006-2009. ASI 2005 MoMa: Dalle Molecole all'Uomo: La Ricerca Spaziale applicata al miglioramento della Qualità della Vita della popolazione anziana.

2005-2011. AGROBIOSENS "Ricerca industriale per la realizzazione di biosensori per il monitoraggio dell'inquinamento da diserbanti in agroalimentare" MIUR.

2005-2009. MULTITASKS "Innovazione di un prodotto biosensoriatico nella realizzazione di un sistema base denominato Biosensore Multitasks e sua applicazione in agrofood basata su brevetto CNR" Ministero dello Sviluppo Economico.

Selected publications :

1.Arduini, F., Cinti, S., Scognamiglio, V., Moscone, D. (2017). Based Electrochemical Devices in Biomedical Field: Recent Advances and Perspectives. *Comprehensive Analytical Chemistry*.

2. Arduini, F., Cinti, S., Scognamiglio, V., Moscone, D., Palleschi, G. (2017). How cutting-edge technologies impact the design of electrochemical (bio) sensors for environmental analysis. A review. *Analytica Chimica Acta*.

3. Arduini, F., Forchielli, M., Scognamiglio, V., Nikolaevna, K. A., Moscone, D. (2016). Organophosphorous Pesticide Detection in Olive Oil by Using a Miniaturized, Easy-to-Use, and Cost-Effective Biosensor Combined with QuEChERS for Sample Clean-Up. *Sensors*, *17*(1), 34.

4. Scognamiglio, V., Antonacci, A., Lambreva, M. D., Arduini, F., Palleschi, G., Litescu, S. C., Johanningmeier, U., Rea, G. (2016). Application of Biosensors for Food Analysis. *Food Safety: Innovative Analytical Tools for Safety Assessment*
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395
, 395.

5. Antonacci, A., Arduini, F., Moscone, D., Palleschi, G., & Scognamiglio, V. (2016). Commercia lly Available (Bio) sensors in the Agrifood Sector
. Comprehensive Analytical Chemistry.

6. Scognamiglio, V., Antonacci, A., Patrolecco, L., Lambreva, M. D., Litescu, S. C., Ghuge, S. A., & Rea, G. (2016). Analytical tools monitoring endocrine disrupting chemicals. TrAC Trends in Analytical Chemistry, 80, 555-567.

7. Zobnina, V., Lambreva, M. D., Rea, G., Campi, G., Antonacci, A., Scognamiglio, V., Giardi, M.T., Polticelli, F. (2016). The plastoquinol–plastoquinone exchange mechanism in photosystem II: insight from molecular dynamics simulations .
Photosynthesis Research, 1-16.

8. Scognamiglio, V., Rea, G., Arduini, F., & Palleschi, G. (2016). Biosensors for Sustainable Food-New Opportunities and Technical Challenges (Vol. 74)
. Elsevier.

9. Arduini, F., Cinti, S., Scognamiglio, V., & Moscone, D. (2016). Nanomaterials in electrochemical biosensors for pesticide detection: advances and challenges in food analysis
. Microchimica Acta, 1-21.

10. Fraceto, L. F., Grillo, R., De Medeiros, G. A., Scognamiglio, V., Rea, G., Bartolucci, C. (2016). Nanotechnology in Agriculture: which innovation potential does it have?. Frontiers in Environmental Science, 4, 20.

11. Arduini, F., Scognamiglio, V., Moscone, D., Palleschi, G. (2016). Electrochemical Biosensors for Chemical Warfare Agents. In Biosensors for Security and Bioterrorism Applications (pp. 115-139).
Springer International Publishing.

12. Arduini, F., Neagu, D., Pagliarini, V., Scognamiglio, V., Leonardis, M. A., Gatto, E., Amine, A., Palleschi, G., Moscone, D. (2016). Rapid and label-free detection of ochratoxin A and aflatoxin B 1 using an optical portable instrument .
Talanta,
150
, 440-448.

13. Scognamiglio V., Antonacci A., Lambreva M.D., Litescu S.C., Rea G. (2015) Synthetic biology and biomimetic chemistry as converging technologies fostering a new generation of smart biosensors.
Biosensor and Bioelectronics 74:1076-1086.

14. F. Arduini, D. Neagu, V. Scognamiglio, S. Patarino, D. Moscone, G. Palleschi (2015) Autom atable Flow System for Paraoxon Detection with an Embedded Screen-Printed Electrode Tailored with Butyrylcholinesterase and Prussian Blue Nanoparticles.
Chemosensors 3 (2), 129-145.

15. Arduini F., Scognamiglio V., Covaia C., Amine A., Moscone D., Palleschi, G. (2015). A choline oxidase amperometric bioassay for the detection of mustard agents based on screen-printed electrodes modified with prussian blue nanoparticles
. Sensors, 15(2), 4353-4367.

16. Scognamiglio V., Arduini F., Palleschi G., Rea G. (2014) Biosensing technology for a sustainable food safety. Trends in Analytical Chemistry
DOI: 10.1016/j.trac.2014.07.007.

17. Paul J.D. Janssen, Maya D. Lambreva, Nicolas Plumeré, Cecilia Bartolucci, Amina Antonacci, Katia Buonasera, Raoul Frese, Viviana Scognamiglio, Giuseppina Rea (2014) Phot osynthesis at the forefront of a sustainable life. Frontiers in Chemistry: Agricultural Biological Chemistry
. Front. Chem. 2:36. doi:10.3389/fchem.2014.00036.

18. Lambreva M. D., Russo D., Polticelli F., Scognamiglio Viviana, Antonacci A., Zobnina V., Campi G., Rea G. (2014) Structure/function/dynamics of Photosystem II plastoquinone binding sites. Current Protein and Peptide Science 15(4): 285–295.

19. Scognamiglio V, Stano P, Polticelli F, Antonacci A, Lambreva MD, Pochetti G, Giardi MT, Rea G. (2013) Design and biophysical characterization of atrazine sensing peptides mimicking the Chlamydomonas reinhardtii plastoquinone binding niche. Phys.Chem. Chem. Phys. 15, 13108-13115.

20. Viviana Scognamiglio (2013) Nanotechnology in glucose monitoring: Advances and challenges in the last 10 years. Biosensors and Bioelectronics .
47: 12-25

21. Viviana Scognamiglio, Italo Pezzotti, Gianni Pezzotti, Juan Cano, Ivano Manfredonia, Katia Buonasera, Giuseppe Rodio, Maria Teresa Giardi (2012) A new embedded biosensor platform based on Micro-Electrodes array (MEA) technology. Sensors & Actuators
B: Chemical. 176: 275–283

22. Viviana Scognamiglio, Italo Pezzotti, Gianni Pezzotti, Juan Cano, Ivano Manfredonia, Katia Buonasera, Fabiana Arduinic, Danila Moscone, Giuseppe Palleschi, Maria Teresa Giardi (2012) Towards an integrated biosensor array for simultaneous and rapid multi-analysis of endocrine disrupting chemicals . Analytica Chimica Acta. 751: 161-70

23. V Scognamiglio, G Pezzotti, I Pezzotti, J Cano, K Buonasera, D Giannini, MT Giardi (2010) Biosensors for effective environmental and agrifood protection and commercialization: from research to market. Microchimica Acta 170: 215-225

24. K Buonasera, G Pezzotti, V Scognamiglio, A Tibuzzi, MT Giardi(2010) A new platform of biosensors for pre-screening of pesticide residues to support laboratory analyses . Journal of Agricultural and Food Chemistry 58: 5982-5990

25. Rea G, Polticelli F, Antonacci A, Scognamiglio V, Katiyar P, Kulkarni SA, Johanningmeier U, Giardi MT (2009) Structure-based design of novel Chlamydomonas reinhardtii D1-D2 photosynthetic proteins for herbicide monitoring . Protein Sci 18(10):2139-51

26. MT Giardi, V Scognamiglio, G Rea, G Rodio, A Antonacci, M Lambreva, G Pezzotti, U Johanningmeier (2009) Optical biosensors for environmental monitoring based on computational and biotechnological tools for engineering the photosynthetic D1 protein of Chlamydomonas reinhardtii. Biosens Bioelectron 25(2):294-300

27. V Scognamiglio, D Raffi, M Lambreva, G Rea, A Tibuzzi, G Pezzotti, U Johanningmeier, MT Giardi (2009) Chlamydomonas reinhardtii genetic variants as probes for fluorescence sensing system in detection of pollutants . Anal Bioanal Chem. Jun 394(4):1081-1087

28. Scognamiglio V, Scirè A, Aurilia V, Staiano M, Crescenzo R, Palmucci C, Bertoli E, Rossi M, Tanfani F, D'Auria S. (2007) A strategic fluorescence labelling of D-galactose/D-glucose-binding protein from E. coli for a better understanding of the protein structural stability and dynamics . J Proteome Res. 6(11):

4119-26.

29. Scognamiglio V, Aurilia V, Ringhieri P, Iozzino L, Tartaglia M, Staiano M, Zeni L, Cennamo N, Vitale A, Rossi M, D'Auria S. (2007) The Galactose/Glucose-binding protein from Escherichia coli as probe for a non-consuming glucose implantable fluorescence biosensor . Sensors Journal 7: 2484-2491.

30. Staiano M, Scognamiglio V, Mamone G, Rossi M, Parracino A, Rossi M, D'Auria S. (2006) Glutamine-binding protein from Escherichia coli specifically binds a wheat gliadin peptide. 2. Resonance energy transfer studies suggest a new sensing approach for an easy detection of wheat gliadin . J Proteome Res 5(9): 2083-2086.

31. D'Auria S, Staiano M, Varriale A, Scognamiglio V, Rossi M, Parracino A, Campopiano S, Cennamo N, Zeni L. (2006) The odorant-binding protein from Canis familiaris: purification, characterization and new perspectives in biohazard assessment . Protein Pept Lett 13(4): 349-352.

32. D'Auria S, Ausili A, Marabotti A, Varriale A, Scognamiglio V, Staiano M, Bertoli E, Rossi M, Tanfani F. (2006) Binding of glucose to the D-galactose/D-glucose-binding protein from Escherichia coli restores the native protein secondary structure and thermostability that are lost upon calcium depletion . J Biochem (Tokyo) 139(2): 213-221.

33. De Stefano L, Rotiroti L, Rendina I, Moretti L, Scognamiglio V, Rossi M, D'Auria S. (2006) Porous silicon-based optical microsensor for the detection of L-glutamine. Biosens Bioelectron 21(8): 1664-1667.

34. Herman P, Vecer J, Barvik I Jr, Scognamiglio V, Staiano M, de Champdore M, Varriale A, Rossi M, D'Auria S. (2005) The role of calcium in the conformational dynamics and thermal stability of the D-galactose/D-glucose-binding protein from Escherichia coli. Proteins 61(1): 184-195.

35. Staiano M, Scognamiglio V, Rossi M, D'Auria S, Stepanenko OV, Kuznetsova IM, Turoverov KK. (2005) Unfolding and refolding of the glutamine-binding protein from Escherichia coli and its complex with glutamine induced by guanidine hydrochloride . Biochemistry 44(15): 5625-5633.

36. Stepanenko OV, Kuznetsova IM, Turoverov KK, Scognamiglio V, Staiano M, D'Auria S. (2005) The structure and stability of the glutamine-binding protein from Escherichia coli and its complex with glutamine . Tsitologiia (Russia) 47(11): 988-1006.

37. Kuznetsova IM, Stepanenko OV, Turoverov KK, Staiano M, Scognamiglio V, Rossi M, D'Auria S. (2005) Fluorescence properties of glutamine-binding protein from Escherichia coli and its complex with glutamine . J Proteome Res 4(2): 417-423.

38. D'Auria S, Scire A, Varriale A, Scognamiglio V, Staiano M, Ausili A, Marabotti A, Rossi M, Tanfani F. (2005) Binding of glutamine to glutamine-binding protein from Escherichia coli induces changes in protein structure and increases protein stability . Proteins 58(1): 80-87.

39. Herman P, Vecer J, Scognamiglio V, Staiano M, Rossi M, D'Auria S. (2004) A recombinant glutamine-binding protein from Escherichia coli: effect of ligand-binding on protein conformational dynamics . Biotechnol Prog 20(6): 1847-1854.

40. Staiano M, Sapio M, Scognamiglio V, Marabotti A, Facchiano AM, Bazzicalupo P, Rossi M, D'Auria S. (2004) A thermostable sugar-binding protein from the Archaeon Pyrococcus horikoshii as a probe for the development of a stable fluorescence biosensor for diabetic patients . Biotechnol Prog 20(5): 1572-1577.

41. Scognamiglio V, Staiano M, Rossi M, D'Auria S. (2004) Protein-based biosensors for diabetic patients

. J Fluoresc 14(5): 491-498.