Bibliography of Stefania Sabella

Stefania Sabella got her degree in Medicinal Chemistry at the University of Pavia, Italy, in 2002. In 2005, she became Doctor of Philosophy (Ph.D) at the Dipartimento di Scienze del Farmaco, University of Pavia, working on pharmaceutical analysis of amyloidogenic proteins and their interactions with drugs (with Prof. E. De Lorenzi and Prof. V. Bellotti). During the Ph.D education, under the Bilateral and Multilateral Cooperation project "Technological Innovation and Transfer of Technology" financially supported by the Ministry of Foreign Affair (Italy), she won a project as young researcher in cooperation with TU-Wien (Austria). Hence, in 2004, she moved as External Researcher at TU-Wien, Austria, with Prof. B. Lendl. There, she developed an analytical method for the selective separation and detection of abeta amyloids by FTIR and capillary electrophoresis. In 2006, she moved as a post-doc in the Department of Analytical Chemistry at the National Nanotechnology Laboratory-CNR, Lecce, Italy with Prof. R. Cingolani (2006-7). There she developed a technique to produce smart polymeric microchips for efficient and fast sensing of biomolecules for POC diagnostics. In 2008, she started her career as Associate Researcher at National Nanotechnology Laboratory-CNR, Lecce, Italy, and after, in 2009 (2009-2015) she moved at the Center for Biomolecular Nanotechnologies of Italian Institute of Technology (CBN-IIT, Lecce, Italy as Team Leader. There, she worked on physical and chemical characterization of the interactions between nanoparticles and living systems.

Since 2015 (2015-current), she is appointed as Technologist and Senior Researcher at Italian Institute of Technology, Genova, Italy. In 2015, she founded the Nanoregulatory Group within the D3-Pharma Chemistry Department. The mission of the group is highly interdisciplinary, requiring a strong integration of scientific knowledge of the nanomaterials to regulatory understanding. Each research activity focuses on toxicology assessments linking the physicochemical properties and functionality of emerging key enabling technologies (including manufactured nanomaterials) to specific hazard outcomes.

Current research interests include:

- Biotransformation of edible novel food or constituents (nanomaterials, nanosensors, etc.) applying bio-fluids related to human exposure (e.g., simulant gastro-intestinal, lung, lysosomal fluids) and their toxicological impact;

- Biotransformation of Nanoplastics in the oro-gastro-intestinal tract and their toxicological impact with doses relevant for human exposure;

- Dissolution test to evaluate drug-drug interactions in complex fluids, bio-accessibility and permeability;

- Co- and 3D- cell cultures (gastro-intestinal or lung epithelia) and their interactions with bio-transformed NP/drug.

- Tiered Testing Strategies (from simple in vitro to in vivo assays) to define homogenous classes of similar nanomaterials grouped by similarity assessment of functional properties (i.e. dissolution). The TTS is a flexible tool to provide support to read across in nanoregulatory assessments and the applications span from human toxicological testing of new technologies to risk classification of emerging new risks in occupational settings.

In recent years, Stefania Sabella got many National and International projects on the above presented

topics. She has established several National and International scientific collaborations with regulatory and economic agencies (Italian Workers' Compensation Authority (INAIL), Istituto Superiore della Sanità (ISS) Ministero della Salute, Organisation for Economic Co-operation and Development, OECD). In 2014, Stefania Sabella was endorsed by EC (through Nanostair, http://www.nanostair.eu-vri.eu) as Italian technical expert in Nanoregulatory and appointed by Italy as Committee member of ISO/TC 229/JWG2 and CEN/TC 352/WG 1/PG 2 and IIT representative.
She has published about 60 articles in refereed journals, she is the author and co-author of 2 book chapters, she is the inventor of >6 patents internationally granted (EU, US, CN, JP, HK). She has several oral and invited contributions to international conferences.

S.S. has provided tutoring activities of graduate and PhD students of the University of Pavia, University of Salento and IIT (multidisciplinary activities in Physics, Biology, Biotechnology, Medicinal Chemistry). She has provided teaching activities in the International Master NAMED at University of Pavia and in the Master Sapienza-Inail "Gestione integrata di salute e sicurezza nell'evoluzione del mondo del lavoro" providing lessons on "Advanced analytical methods for nanomaterials"

S.S. has provided extra-research activities as listed below:
- Organization of the ITS-NANO international conference (Venice, March 2013);
- Preparation of the rollout event of ITS-NANO held in Dublin (webinar session, June, 2012).
- Expert and project reviewer for the Croatian Science Foundation.
- Reviewer of several international referred journals (ACS Nano, Small, Nanoscale, etc).

Patents:

1. **Sabella**, M.A. Malvindi, E. Torino, P.P. Pompa, R. Cingolani, P. Netti "Albumin Nanoparticles
   Encapsulating Gadolinium And Method Of Synthesis Thereof" Patent EP….
2. P.P. Pompa, S. **Sabella**, R. Cingolani "Device And Method For Determining The Dissolution Kinetics Of Colloidal Nanoparticles" Patents EP2885622, IT0001413157
3. A. Athanassiou, I.S. Bayer, I. Liakos, L. Rizzello, R. Cingolani, S. **Sabella**, and P.P. Pompa "Polymeric composite materials with antimicrobial and biodegradable properties and uses thereof" Patents US9931444, JP6157582, CA2866782, (EP pending).
4. S. **Sabella**, P.P. Pompa, G. Maruccio, G. Vecchio, R. Cingolani, and R. Rinaldi "Integrated plastic
   microdevice for quantitative analyses of real-time PCR" Patent ITTO20080810.
5. K. Aoki, M. De Vittorio, T. Stomeo, F. Pisanello, A. Massaro, L. Martiradonna, S. **Sabella**, R. Rinaldi, Y. Arakawa, R. Cingolani, and P.P. Pompa "Method of identifying a target analyte using photonic crystal resonators, and related device" Patent US8029994.
6. P.P. Pompa, S. **Sabella**, R. Rinaldi, R. Cingolani, and F. Calabi "A method and a microdevice for the identification and/or quantification of an analyte in a biological sample with optical detection systems based on FRET processes" Patent EP2122352.

Chapters in International Book

1. **Sabella S.** "Impact of Bionanointeractions of Engineered Nanoparticles for Nanomedicine", Nanotoxicology: Progress toward Nanomedicine, CRC Press/Taylor &Francis Group LLCS, 2, 21-31, (2014). ISBN 9781482203875

2. **S Sabella**, P P Pompa, B Sorce, L L del **Mercato**, R Rinaldi (2010) "Amyloid fibrils: from nature to nanotechnology" Research Signpost isbn:978-81-308-0425-5.

Selected oral contributions to international conferences

- **S. Sabella**, Istituto Superiore di Sanità, "Assorbimento orale dei nanomateriali: un approccio in vitro per il rispetto degli obblighi di informazione di cui al regolamento REACH", seminar "Modelli di digestione simulata in vitro: stato dell'arte" 9 March 2021, On-line Workshop in Streaming (*Invited*)
- NanoHarmony, Horizon 2020 (n. 885931): International Workshop on Gap Analysis and Data Requirements to support OECD Test Guideline and Guidance Document Development. 3-5 November 2020. Session 4, **S. Sabella** was invited with the seminar "Data gaps identification related to intestinal fate of ingested nanomaterials" on line workshop, (*invited*).
- **S. Sabella**, OECD-WPMN STEERING GROUP ON TESTING AND ASSESSMENT OF MANUFACTURED NANOMATERIALS Project proposal ENV/CHEM/NANO(2019)5/ADD1/REV, 13 May, 2020 14-16 (Paris time) on-line workshop: "Integrated in vitro Approach for Intestinal Fate or Orally Ingested Nanomaterials" 13 May, on line seminar (*Invited*).
- **S. Sabella** "Test di dissoluzione di NPs in fluidi digestivi sintetici: quantificazione delle bio-trasformazioni e loro impatto sulla valutazione del rischio" Workshop "Il supporto scientifico alla regolamentazione europea per la gestione dei nanomateriali ingegnerizzati: il contributo italiano" Ministero della Salute, 14 febbraio 2017, Roma, IT (*Invited*)
- **S. Sabella** "Framing the nano-biointeractions by proteomics" Bios SPIE Photonics West, 21 - 26 January 2012, Moscone Center, San Francisco, CA, USA *(Invited)*
- **S. Sabella** "The study of nano-biointeractions by proteomics and their role in nanotoxicology" NANOFORUM, Rome, 26 September (2012) *(Invited)*
- **S. Sabella**, et al. "Cell Culture Media Elicit a Different Dynamic Formation of Protein-NP Complexes: Effects on the Cellular ResponseTechConnectWorldConference and Expo 2011, June 13-16, Boston (MA) (*Oral Comunication)*
- **S. Sabella** "Nano-biointeractions and nanotoxicology@IIT-CBN" 1st Italian-Swedish Workshop on Health Impacts of Engineered Nanoparticles, Tor Vergata University, Rome, October 14-15 (2010) (*Invited*)
- **S. Sabella** "Nanomaterials can influence living biological systems with nanometer sensitivity" BIT's 1st Annual World Congress of NanoMedicine, October 23-25, 2010, Beijing, China (*Invited)*
- **S. Sabella** "Nano-biointeractions and nanotoxicology@IIT-CBN" Nanomedicine @ King's College London (KCL), 1th Symposium of Nanomedicine, 01 December 2010, London, UK (I*nvited)*

Projects

- *Delivered as Unit Coordinator (ongoing)*

- Nano Key Advanced (EPTR0009) - Nano and Key enabling technologies: advanced innovations and health and safety in the workplace- (2021-2023) funded by INAIL

- NanoForma (EPNZ0096) - Definizione di un protocollo sperimentale per la digestione simulata in vitro di sostanze in nanoforma ai fini della messa a punto di un Guidance Document (GD) OECD nel rispetto degli obblighi di informazione di cui al regolamento REACH - (2019-2021) funded by Ministry of Health
- OECD ENV/CHEM/NANO(2019)5/ADD1 - Integrated in vitro approach for intestinal fate of orally ingested nanomaterials - in collaboration with OECD, ISS, Ministry of Health, and Ecamricert, Italy.
- GRACIOUS - Grouping, Read-Across, CharacterIsation and classificatiOn framework for regUlatory risk assessment of manufactured nanomaterials and Safer design of nano-enabled products – Horizon 2020 (n. 760840)
- NanoHarmony, Horizon 2020 (n. 885931): Associated Partners in Task Task 1.5 Scientific basis for a new GD on the determination of solubility and dissolution rate of ENMs and Task 1.8 Scientific basis for a new GD on integrated in vitro approach for intestinal fate of orally ingested ENMs.

- *Delivered as Unit Coordinator or WP Leader (completed)*

- NanoKey (EPTR0003) - Nano and Key enabling technologies: advanced innovations and health and safety in the workplace- (2018-2020) funded by INAIL
- NanoREG II - (H2020-NMP-2014, GA 646221) (2016-2018);
- *NanoREG* - (FP7-NMP-2012-LARGE, GA 310584) (2012-2015);
- *ITS-NANO* - (FP7-NMP-2011-CSA, no. 290589) (2012-2013):
- AIRC - Translating innovation into colorectal cancer control" (2010-2012) Unit Coordinator;
- FIRB Nanogenomica (2007-2013)