


Speaker information

General Information

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| Name | Michele Schlich |  |
| Email | michele.schlich@unica.it | |
| Contact Number | +39 070 675 8977 | |
| Affiliation | University of Cagliari | |
| Education Background | Master's Degree in Pharmaceutical Chemistry and Technology PhD in Life, Environmental and Drug Sciences | |
| Professional Appointment | Assistant Professor of Pharmaceutical Technology | |
| Research Interest | Drug delivery systems, lipid nanoparticles, nucleic acid delivery, nanocrystals, microfluidic production of nanomedicines | |
| Website (if any) | https://web.unica.it/unica/page/it/michele_schlich https://x.com/MicSchlich | |

Recent Publications

- Casula, L., et al Pireddu, R., Cardia, M.C., Pini, E., Valenti, D., **Schlich, M.**, Sinico, C., Marceddu, S., Dragicevic, N., Fadda, A.M., Lai, F. Nanosuspension-Based Dissolvable Microneedle Arrays to Enhance Diclofenac Skin Delivery 2023 *Pharmaceutics* 15 (9) 2308 doi: 10.3390/pharmaceutics15092308
- Giacomazzo, G.E.*, **Schlich, M.***, Casula, L.*, Galantini, L., Del Giudice, A., Pietrapperia, G., Sinico, C., Cencetti, F., Pecchioli, S., Valtancoli, B., Conti, L., Murgia, S., Giorgi, C. Ruthenium(ii) polypyridyl complexes with π -expansive ligands: synthesis and cubosome encapsulation for photodynamic therapy of non-melanoma skin cancer 2023 *Inorganic Chemistry Frontiers* 10 (10) 3025 – 3036 doi: 10.1039/d2qj02678c
- Schlich, M.**, Musazzi, U., Campani, V., Biondi, M., Franzé, S., Lai, F., De Rosa, G., Sinico, C., Cilurzo F. Design and development of topical liposomal formulations in a regulatory perspective 2022 *Drug Delivery and Translational Research* 12(8) 1811 – 1828 doi: 10.1007/s13346-021-01089-z

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4. **Schlich, M.**, Casula, L., Musa, A., Pireddu, R., Pitzanti, G., Cardia, M.C., Valenti, D., Marceddu S., Fadda, A.M., De Luca, M.A., Sinico C., Lai, F. Needle-Free Jet Injectors and Nanosuspensions: Exploring the Potential of an Unexpected Pair 2022 *Pharmaceutics* 14(5) 1085 doi: 10.3390/pharmaceutics14051085
5. Felici, A., **Schlich, M.**, Di Mascolo, D., Goldoni, L., Palange, A.L., Decuzzi, P. Boosting the therapeutic efficacy of discoidal nanoconstructs against glioblastoma with rationally designed PEG-Docetaxel conjugates 2022 *European Journal of Pharmaceutics and Biopharmaceutics* 174 90-100 doi: 10.1016/j.ejpb.2022.03.011
6. **Schlich, M.**, Palomba, R., Costabile, G., Mizrahy, S., Pannuzzo, M., Peer, D., Decuzzi, P. Cytosolic delivery of nucleic acids: The case of ionizable lipid nanoparticles 2021 *Bioengineering and Translational Medicine* 6(2) e10213 doi: 10.1002/btm2.10213
7. **Schlich, M.**, Lai, F., Pireddu, R., Pini, E., Ailuno, G., Fadda, A.M., Valenti, D., Sinico, C. Resveratrol proniosomes as a convenient nanoingredient for functional food 2020 *Food Chemistry* 310 125950 doi: 10.1016/j.foodchem.2019.125950
8. **Schlich, M.**, Sinico, C., Valenti, D., Gulati, A., Joshi, M.D., Meli, V., Murgia, S., Xanthos, T. Towards long-acting adrenaline for cardiopulmonary resuscitation: Production and characterization of a liposomal formulation 2019 *International Journal of Pharmaceutics* 557 105-111 doi: 10.1016/j.ijpharm.2018.12.044
9. **Schlich, M.**, Fornasier, M., Nieddu, M., Sinico, C., Murgia, S., Rescigno, A. 3-hydroxycoumarin loaded vesicles for recombinant human tyrosinase inhibition in topical applications 2018 *Colloids and Surfaces B: Biointerfaces* 171 675-681 doi: 10.1016/j.colsurfb.2018.08.008
10. **Schlich, M.**, Longhena, F., Faustini, G., O'Driscoll, C.M., Sinico, C., Fadda, A.M., Bellucci, A., Lai, F. Anionic liposomes for small interfering ribonucleic acid (siRNA) delivery to primary neuronal cells: Evaluation of alpha-synuclein knockdown efficacy 2017 *Nano Research* 10(10) 3496-3508 doi: 10.1007/s12274-017-1561-z



The 2nd Symposium on Drug Discovery

July 2nd – 3rd, 2024 | Taipei, Taiwan

Speaker information

Speech Topic and Abstract

Title:

Transforming molecules into medicines with drug delivery nanotechnologies: case studies on lipid-based nanoparticles

Abstract:

The majority of new chemical and biological entities in the discovery pipelines suffers from one or more biopharmaceutical drawbacks, including poor aqueous solubility, instability due to chemical or enzymatic degradation, and limited accumulation to the target tissues/cells for the presence of biological barriers. Drug delivery strategies can be designed and implemented to tackle these and other drawbacks, maximizing the efficacy of the drug by protecting, transporting, and releasing it to the target site and/or by minimizing off-target accumulation. In the last decades, the use of nanotechnologies for drug delivery opened unforeseen possibilities and led to the establishment of a new concept – nanomedicine – that includes several products currently on the market and in clinical use. This talk will be focused on lipid-based nanoparticles, one of the most studied and most successful categories of nanomedicines. After an overview on the functioning principles and examples of clinical translation, I will present the results from two recent applications developed in our lab: (I) the use of lipid-based nanoaggregates to boost protein antigenicity in vaccines, and (II) the production of a liposomal adrenaline formulation to improve the neurological outcome following cardiac arrest and resuscitation.