

Federica Rinaldi

- Date of birth: 13-02-80
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Name of employer:

- University of Rome "Sapienza"
- CLNS@SAPIENZA Roma - Istituto Italiano di Tecnologia (IIT)

Title of qualification

- **2011** PhD in "Pharmaceutical Sciences"
- **2008** Degree in Chemistry and Pharmaceutical Technologies

Education and training:

- **from 2014 to today** Collaborator acting as Post-doc, Istituto Italiano di Tecnologia - IIT.
- **2011-2014** Post-doc, at Department of Chemistry and Pharmaceutical Technologies of the Faculty of Pharmacy ("Sapienza" University of Rome).
- **2008-2011** PhD in "Pharmaceutical Sciences" at Department of Chemistry and Pharmaceutical Technologies of the Faculty of Pharmacy ("Sapienza" University of Rome). PhD thesis on: "Novel targeting strategies: vesicles by "classical" and synthetic surfactants" (Supervisor: Prof. Maria Carafa)
- **2009** License to practice the profession of Pharmacist.
- **2008** Degree in Chemistry and Pharmaceutical Technologies at the Faculty of Pharmacy, "Sapienza" University of Rome. Experimental thesis entitled: "Characterization studies of pH-sensitive vesicles by new derivatives surfactants". (Supervisor: Prof. Eleonora Santucci).

### Personal skills and competences:

Dr. Rinaldi research activity is mainly focused on the study of phospholipid and non-phospholipid vesicles as drug delivery systems. In particular involved in preparation and characterization of vesicles for cytoplasmic delivery of therapeutic agents (pH-sensitive niosomes) and for topic (various niosomal formulations), oral and nasal (coated liposomes/niosomes), pulmonary (coated and uncoated niosomes) and brain (liposomes-niosomes) delivery of drugs and theranostic application (nanobubbles). Expert in physical-chemical characterization by fluorimetric technique of different vesicular system. Dr Rinaldi has been involved not only in preparation and characterization of vesicular systems for different application, but also in application studies by in vitro cellular evaluation and in vivo of drug delivery systems. Currently her research is focused on preparation and characterization of novel drug delivery systems (nanoemulsions) composed by essential oil and natural active compounds.

### Member of scientific society:

- SCI: Società Chimica Italiana, divizione di Tecnologia Farmaceutica.
- CRS: Controlled Release Society.
- A.D.R.I.T.E.L.F.: Associazione Docenti e Ricercatori di Tecnica e Legislazione Farmaceutica.

### Patent:

- Nanobolle e relativi impieghi, Domanda numero: 102016000037062.
- Nanobubbles and uses thereof, International application number: WO2017/178954 A1.

### Textbooks (Chapters, etc.):

- Carlotta Marianecchi, Luisa Di Marzio, Federica Rinaldi, Sara Esposito, Maria Carafa  
“Niosomes”  
In Fundamentals of Pharmaceutical Nanoscience, ISBN 978-1-4614-9163-7  
Eds. Uchegbu, I.F.; Schätzlein, A.; Cheng, W.P.; Lalatsa, A.  
Springer Science + Business Media New York (2013)

### Scientific Publication

1. Vitanza, L., Maccelli A., Marazzato, M., Scazzocchio, F., Comanducci, A., Fornarini, S., Crestoni, M.E., Filippi, A., Frascchetti, C., Rinaldi, F., Aleandri, M., Goldoni, P., Conte, M.P., Ammendolia, M.G., Longhi C.  
Satreja montana L. essential oil and its antimicrobial activity alone or in T combination with gentamicin  
(2019) Microbial Pathogenesis, 126,323

2. Rinaldi, F., Seguella, L., Gigli, S., Hanieh, P.N., Del Favero, E., Cantù, L., Pesce, M., Sarnelli, G., Marianecchi, C., Esposito G., Carafa, M.  
inPentosomes: An innovative nose-to-brain pentamidine delivery blunts MPTP parkinsonism in mice  
(2019) *Journal of Controlled Release*, 294 pp. 17-26
3. Rinaldi, F., Hanieh, P.N., Del Favero, E., Rondelli, V., Brocca, P., Pereira, M. C., Andreev, O. A., Reshetnyak, Y. K., Marianecchi, C. Carafa, M.  
Decoration of Nanovesicles with pH (Low) Insertion Peptide (pHLIP) for Targeted Delivery  
(2018) *Nanoscale Research Letters* 13, pp.391.
4. Rinaldi, F., Hanieh, P.N., Chan. L.K.N., Angeloni L., Passeri D., Rossi M., Wang J. T.W., Imbriano A., Carafa M., Marianecchi, C.  
Chitosan Glutamate-Coated Niosomes: A Proposal for Nose-to-Brain Delivery  
(2018) *Pharmaceutisc*, 10, pp. 38.
5. Marianecchi, C., Rinaldi, F., Hanieh, P.N., Di Marzio, L., Paolino, D., Carafa, M.  
Drug delivery in overcoming the blood-brain barrier: Role of nasal mucosal grafting  
(2017) *Drug Design, Development and Therapy*, 11, pp. 325-335.
6. Rinaldi, F., Del Favero, E., Rondelli, V., Pieretti, S., Bogni, A., Ponti, J., Rossi, F., Di Marzio, L., Paolino, D., Marianecchi, C., Carafa, M.  
pH-sensitive niosomes: Effects on cytotoxicity and on inflammation and pain in murine models  
(2017) *Journal of Enzyme Inhibition and Medicinal Chemistry*, 32 (1), pp. 538-546.
7. Scazzocchio, F., Mondì, L., Ammendolia, M.G., Goldoni, P., Comanducci, A., Marazzato, M., Conte, M.P., Rinaldi, F., Crestoni, M.E., Frascchetti, C., Longhi, C.  
Coriander (*Coriandrum sativum*) Essential Oil: Effect on Multidrug Resistant Uropathogenic *Escherichia coli*  
(2017) *Natural Product Communications*, 12 (4), pp. 623-626.
8. Rinaldi, F., Hanieh, P.N., Longhi, C., Carradori, S., Secci, D., Zengin, G., Ammendolia, M.G., Mattia, E., Del Favero, E., Marianecchi, C., Carafa, M.  
Neem oil nanoemulsions: characterisation and antioxidant activity  
(2017) *Journal of Enzyme Inhibition and Medicinal Chemistry*, 32 (1), pp. 1265-1273.
9. Ingallina, C., Rinaldi, F., Bogni, A., Ponti, J., Passeri, D., Reggente, M., Rossi, M., Kinsner-Ovaskainen, A., Mehn, D., Rossi, F., Botta, B., Carafa, M., Marianecchi, C.  
Niosomal approach to brain delivery: Development, characterization and in vitro toxicological studies  
(2016) *International Journal of Pharmaceutics*, 511 (2), pp. 969-982.
10. Marianecchi, C., Petralito, S., Rinaldi, F., Hanieh, P.N., Carafa, M.  
Some recent advances on liposomal and niosomal vesicular carriers  
(2016) *Journal of Drug Delivery Science and Technology*, 32, pp. 256-269.
11. Marianecchi, C., Di Marzio, L., Del Favero, E., Cantù, L., Brocca, P., Rondelli, V., Rinaldi, F., Dini, L., Serra, A., Decuzzi, P., Celia, C., Paolino, D., Fresta, M., Carafa, M.

Niosomes as Drug Nanovectors: Multiscale pH-Dependent Structural Response  
(2016) *Langmuir*, 32 (5), pp. 1241-1249.

12. Marianecci, C., Rinaldi, F., Hanieh, P.N., Paolino, D., di Marzio, L., Carafa, M.  
Nose to brain delivery: New trends in amphiphile-based "soft" nanocarriers  
(2015) *Current Pharmaceutical Design*, 21 (36), pp. 5225-5232.
13. Venditti, I., Hassanein, T.F., Fratoddi, I., Fontana, L., Battocchio, C., Rinaldi, F., Carafa, M., Marianecci, C., Diociaiuti, M., Agostinelli, E., Cametti, C., Russo, M.V.  
Bioconjugation of gold-polymer core-shell nanoparticles with bovine serum amine oxidase for biomedical applications  
(2015) *Colloids and Surfaces B: Biointerfaces*, 134, pp. 314-321.
14. Dong, C., Corsetti, S., Passeri, D., Rossi, M., Carafa, M., Pantanella, F., Rinaldi, F., Ingallina, C., Sorbo, A., Marianecci, C.  
Visualization and quantification of magnetic nanoparticles into vesicular systems by combined atomic and magnetic force microscopy  
(2015) *AIP Conference Proceedings*, 1667, art. no. 020011.
15. Passeri, D., Rinaldi, F., Ingallina, C., Carafa, M., Rossi, M., Terranova, M.L., Marianecci, C.  
Biomedical applications of nanodiamonds: An overview  
(2015) *Journal of Nanoscience and Nanotechnology*, 15 (2), pp. 972-988.
16. Coviello, T., Trotta, A.M., Marianecci, C., Carafa, M., Di Marzio, L., Rinaldi, F., Di Meo, C., Alhaique, F., Matricardi, P.  
Gel-embedded niosomes: Preparation, characterization and release studies of a new system for topical drug delivery  
(2015) *Colloids and Surfaces B: Biointerfaces*, 125, pp. 291-299.
17. Marianecci, C., Di Marzio, L., Rinaldi, F., Celia, C., Paolino, D., Alhaique, F., Esposito, S., Carafa, M.  
Niosomes from 80s to present: The state of the art  
(2014) *Advances in Colloid and Interface Science*, 205, pp. 187-206.
18. Marianecci, C., Rinaldi, F., Di Marzio, L., Mastriota, M., Pieretti, S., Celia, C., Paolino, D., Iannone, M., Fresta, M., Carafa, M.  
Ammonium glycyrrhizinate-loaded niosomes as a potential nanotherapeutic system for anti-inflammatory activity in murine models  
(2014) *International Journal of Nanomedicine*, 9 (1), pp. 635-651.
19. Passeri, D., Dong, C., Reggente, M., Angeloni, L., Barteri, M., Scaramuzza, F.A., de Angelis, F., Marinelli, F., Antonelli, F., Rinaldi, F., Marianecci, C., Carafa, M., Sorbo, A., Sordi, D., Arends, I.W.C.E., Rossi, M.  
Magnetic force microscopy: Quantitative issues in biomaterials  
(2014) *BioMatter*, 4 (6), art. no. e29507.
20. Marianecci, C., Rinaldi, F., Esposito, S., Di Marzio, L., Carafa, M.  
Niosomes encapsulating ibuprofen-cyclodextrin complexes: Preparation and characterization

(2013) *Current Drug Targets*, 14 (9), pp. 1070-1078.

21. Di Marzio, L., Esposito, S., Rinaldi, F., Marianecchi, C., Carafa, M.  
Polysorbate 20 vesicles as oral delivery system: In vitro characterization  
(2013) *Colloids and Surfaces B: Biointerfaces*, 104, pp. 200-206.
22. Marianecchi, C., Rinaldi, F., Di Marzio, L., Pozzi, D., Caracciolo, G., Manno, D., Dini, L., Paolino, D., Celia, C., Carafa, M.  
Interaction of pH-sensitive non-phospholipid liposomes with cellular mimetic membranes  
(2013) *Biomedical Microdevices*, 15 (2), pp. 299-309.
23. Marianecchi, C., Rinaldi, F., Marzio, L.D., Ciogli, A., Esposito, S., Carafa, M.  
Polysorbate 20 vesicles as multi-drug carriers: In vitro preliminary evaluations  
(2013) *Letters in Drug Design and Discovery*, 10 (3), pp. 212-218.
24. Marianecchi, C., Rinaldi, F., Carafa, M., Di Marzio, L., Esposito, S.  
Niosomes  
(2013) *Fundamentals of Pharmaceutical Nanoscience*, pp. 65-90.
25. Marianecchi, C., Rinaldi, F., Ingallina, C., Passeri, D., Sorbo, A., Rossi, M., Carafa, M.  
Smart magnetic nanovesicles for theranostic application: Preparation and characterization  
(2013) *Nuovo Cimento della Societa Italiana di Fisica C*, 36 (2), pp. 103-110.
26. Marianecchi, C., Rinaldi, F., Mastriota, M., Pieretti, S., Trapasso, E., Paolino, D., Carafa, M.  
Anti-inflammatory activity of novel ammonium glycyrrhizinate/niosomes delivery system: Human and murine models  
(2012) *Journal of Controlled Release*, 164 (1), pp. 17-25.
27. Di Marzio, L., Marianecchi, C., Rinaldi, F., Esposito, S., Carafa, M.  
Deformable surfactant vesicles loading ammonium glycyrrhizinate: Characterization and in vitro permeation studies  
(2012) *Letters in Drug Design and Discovery*, 9 (5), pp. 494-499.
28. Maria necci, C., Carafa, M., di Marzio, L., Rinaldi, F., di Meo, C., Alhaique, F., Matricardi, P., Coviello, T.  
A new vesicle-loaded hydrogel system suitable for topical applications: Preparation and characterization  
(2011) *Journal of Pharmacy and Pharmaceutical Sciences*, 14 (3), pp. 336-346.
29. Di Marzio, L., Marianecchi, C., Petrone, M., Rinaldi, F., Carafa, M.  
Novel pH-sensitive non-ionic surfactant vesicles: Comparison between Tween 21 and Tween 20  
(2011) *Colloids and Surfaces B: Biointerfaces*, 82 (1), pp. 18-24.
30. Masotti, A., Vicennati, P., Alisi, A., Marianecchi, C., Rinaldi, F., Carafa, M., Ortaggi, G.  
Novel Tween® 20 derivatives enable the formation of efficient pH-sensitive drug delivery vehicles for human hepatoblastoma  
(2010) *Bioorganic and Medicinal Chemistry Letters*, 20 (10), pp. 3021-3025.

31. Carafa, M., Marianecci, C., Rinaldi, F., Santucci, E., Tampucci, S., Monti, D.  
Span® and Tween® neutral and pH-sensitive vesicles: Characterization and in vitro skin permeation  
(2009) *Journal of Liposome Research*, 19 (4), pp. 332-340.