

Curriculum Vitae of Roya Binaymotlagh

Personal Information

- Name Roya
- Surname Binaymotlagh

Education and Research Experience

- Date 11-01-2021 to present (graduation date: January 2025)
• Sapienza University of Rome Chemical Sciences (PhD student at the Nanobiotechnology and Nanomaterials laboratory of the Department of Chemistry).
- Date 09-23-2011 to 07-08-2013
• Khajeh Nasir Toosi University of Technology (Iran) Inorganic Chemistry (formal master's degree with the average score of 17.75/20).
- Date 09-23-2007 to 09-22-2011
• Khajeh Nasir Toosi University of Technology (Iran) Applied Chemistry (formal bachelor's degree with the average score of 15.98/20).

Scientific Publications

- 1 Farid Hajareh Haghighi, **Roya Binaymotlagh**, Cleofe Palocci, Laura Chronopoulou, "Magnetic iron oxide nanomaterials for lipase immobilization: Promising industrial catalysts for biodiesel production", *Catalysts*, **2024**, 14, 336, DOI: 10.3390/catal14060336.
- 2 Farid Hajareh Haghighi, **Roya Binaymotlagh**, Paula Stefana Pintilei, Cleofe Palocci, Laura Chronopoulou, "Preparation of peptide-based magnetogels for removing organic dyes from water", *Gels*, **2024**, 10, 287, DOI: 10.3390/gels10050287.
- 3 **Roya Binaymotlagh**, Farid Hajareh Haghighi, Laura Chronopoulou, Cleofe Palocci, "Liposome-hydrogel composites for controlled drug delivery applications", *Gels*, **2024**, 10, 284, DOI: 10.3390/gels10040284.
- 4 Farid Hajareh Haghighi, **Roya Binaymotlagh**, Ilaria Fratoddi, Laura Chronopoulou, Cleofe Palocci, "Peptide-hydrogel nanocomposites for anti-cancer drug delivery", *Gels*, **2023**, 9, 953, DOI: 10.3390/gels9120953.
- 5 **Roya Binaymotlagh**, Farid Hajareh Haghighi, Enea Gino Di Domenico, Francesca Sivori, Mauro Truglio, Alessandra Del Giudice, Ilaria Fratoddi, Laura Chronopoulou, Cleofe Palocci, "Biosynthesis of peptide hydrogel-titania nanoparticle composites with antibacterial properties", *Gels*, **2023**, 9, 940, DOI: 10.3390/gels9120940.
- 6 Farid Hajareh Haghighi, **Roya Binaymotlagh**, Laura Chronopoulou, Sara Cerra, Andrea Giacomo Marrani, Francesco Amato, Cleofe Palocci, Ilaria Fratoddi, "Self-assembling peptide-

based magnetogels for the removal of heavy metals from water”, *Gels*, **2023**, 9, 621, DOI: 10.3390/gels9080621.

- 7 **Roya Binaymotlagh**, Laura Chronopoulou, Cleofe Palocci, “Peptide-based hydrogels: Template materials for tissue engineering”, *Journal of Functional Biomaterials*, **2023**, 14, 233, (Review Article), DOI: 10.3390/jfb14040233.
- 8 Laura Chronopoulou, **Roya Binaymotlagh**, Sara Cerra, Farid Hajareh Haghighi, Enea Gino Di Domenico, Francesca Sivori, Ilaria Fratoddi, Silvano Mignardi, Cleofe Palocci, “Preparation of hydrogel composites using a sustainable approach for in situ silver nanoparticles formation”, *Materials*, **2023**, 16, 2134, DOI: 10.3390/ma16062134.
- 9 Farid Hajareh Haghighi, Martina Mercurio, Sara Cerra, Tommaso Alberto Salamone, **Roya Binaymotlagh**, Cleofe Palocci, Vincenzo Romano Spica, Ilaria Fratoddi, “Surface modification of TiO₂ nanoparticles with organic molecules and their biological applications”, *Journal of Materials Chemistry B*, **2023**, 11, 2334-2366, (Review Article), DOI: 10.1039/D2TB02576K.
- 10 **Roya Binaymotlagh**, Alessandra Del Giudice, Silvano Mignardi, Francesco Amato, Andrea Giacomo Marrani, Francesca Sivori, Ilaria Cavallo, Enea Gino Di Domenico, Cleofe Palocci, Laura Chronopoulou, “Green in situ synthesis of silver nanoparticles-peptide hydrogel composites: Investigation of their antibacterial activities”, *Gels*, **2022**, 8, 700, DOI: 10.3390/gels8110700.
- 11 **Roya Binaymotlagh**, Laura Chronopoulou, Farid Hajareh Haghighi, Ilaria Fratoddi, Cleofe Palocci, “Peptide-based hydrogels: New materials for biosensing and biomedical applications”, *Materials*, **2022**, 15, 5871 (Review Article), DOI: 10.3390/ma15175871.
- 12 Farid Hajareh Haghighi, **Roya Binaymotlagh**, Seyede Zohreh Mirahmadi-Zare, Hassan Hadadzadeh, “Aptamer/magnetic nanoparticles decorated with fluorescent gold nanoclusters for selective detection and collection of human promyelocytic leukemia (HL-60) cells from a mixture”, *Nanotechnology*, **2019**, 31, 025605, DOI: 10.1088/1361-6528/ab484a.
- 13 **Roya Binaymotlagh**, Farid Hajareh Haghighi, Fatemeh Aboutalebi, Seyede Zohreh Mirahmadi-Zare, Hassan Hadadzadeh, Mohammad-Hossein Nasr-Esfahani, “Selective chemotherapy and imaging of colorectal and breast cancer cells by a modified MUC-1 aptamer conjugated to the poly(ethylene glycol)-dimethacrylate coated Fe₃O₄-AuNCs nanocomposite”, *New Journal of Chemistry*, **2019**, 43, 238-248, DOI: 10.1039/C8NJ04236E.
- 14 **Roya Binaymotlagh**, Hossein Farrokhpour, Hassan Hadadzadeh, Seyede Zohreh Mirahmadi-Zare, Zahra Amirghofran, “Combined experimental and computational study of the in situ adsorption of piroxicam anions on the laser-generated gold nanoparticles”, *The Journal of Physical Chemistry C*, **2017**, 121, 8589-8600, DOI: 10.1021/acs.jpcc.6b12962.
- 15 **Roya Binaymotlagh**, Hassan Hadadzadeh, Hossein Farrokhpour, Farid Hajareh Haghighi, Fatemeh Abyar, Seyede Zohreh Mirahmadi-Zare, “In situ generation of the gold nanoparticles-bovine serum albumin (AuNPs-BSA) bioconjugated system using pulsed-laser ablation (PLA)”, *Materials Chemistry and Physics*, **2016**, 177, 360-370, DOI: 10.1016/j.matchemphys.2016.04.040.

Patents

- 2019 **Roya Binaymotlagh**, "Biocompatible adsorbent based on modified zeolite with eggshell nanoparticles in order to remove nickel, magnesium and calcium metals from aqueous solutions". Iran, Serial No.: 92/A 002145, International classification (IPC): C07C 27/34; B01D 53/14; B01J 21/12; C07C 37/68
- 2019 **Roya Binaymotlagh**, Farid Hajareh Haghighi, "A process to increase the production efficiency of green chromium oxide from chromite ore". Iran, Serial No.: 92/A 002146, International classification (IPC): C01G 37/00; C25D 11/38; C22B 34/32; C01G 37/14
- 2018 **Roya Binaymotlagh**, Farid Hajareh Haghighi, Seyede Zohreh Mirahmadi-Zare, "Fluorescence emitting superparamagnetic aptamer-bound nanocomposite for imaging and specialized treatment of cancer cells". Iran, Serial No.: A/89 018709, International classification (IPC): A61B 5/00; A61K 49/00

International Congresses

- Oral Second Symposium for YouNg Chemists: Innovation and Sustainability, Rome, 24-28/06/**2024**
Roya Binaymotlagh, Farid Hajareh Haghighi, Laura Chronopoulou, Sara Cerra, Andrea Giacomo Marrani, Francesco Amato, Cleofe Palocci, Ilaria Fratoddi. Self-assembling peptide-based magnetogels for the removal of heavy metals from water.
- Poster NanoInnovation 2023, Rome, 18-22/09/**2023**
Farid Hajareh Haghighi, **Roya Binaymotlagh**, Laura Chronopoulou, Sara Cerra, Andrea Giacomo Marrani, Francesco Amato, Cleofe Palocci, Ilaria Fratoddi. Self-assembling peptide-based magnetogels for the removal of heavy metals from water.
- Poster Nanoinnovation 2023, Rome, 18-22/09/**2023**
Roya Binaymotlagh, Laura Chronopoulou, Alessandra Del Giudice, Luciano Galantini, Enea Gino Di Domenico, Cleofe Palocci. Biosynthesis of antibacterial peptide hydrogels/titania nanoparticles composites.
- Poster Novel frontiers in nanocarriers preparation and characterization, Rome, 07/06/**2022**
Roya Binaymotlagh, Laura Chronopoulou, Cleofe Palocci. Green synthesis of peptide-based hydrogel-silver nanoparticles hybrid and their biological applications.
- Oral YoungInnovation 2022, Rome, 21-23/09/**2022**
Roya Binaymotlagh, Farid Hajareh Haghighi, Laura Chronopoulou, Ilaria Fratoddi, Cleofe Palocci. Synthesis of a novel biocompatible peptide hydrogel impregnated with titanium oxide nanoparticles; investigation of its biological applications.
- Oral First Symposium for YouNg Chemists: Innovation and Sustainability, Rome, 20-23/06/**2022**
Roya Binaymotlagh, Laura Chronopoulou, Camilla Giacinti, Sara Cerra, Ilaria Fratoddi, Cleofe Palocci. Green in situ synthesis of Ag nanoparticles-peptide hydrogel composites: Investigation of their antibacterial activities.

Participations in Funded Projects

- Sapienza University of Rome **2022** Principal investigator of the research project Avvio alla Ricerca entitled "Encapsulation of Vitamin C Inside of Size Controlled Liposome Nanoparticles Fabricated by a New Method". Project number AR122181687C379A Funding: 1,200 euro.

Honors and Awards

Sapienza University of Rome 2020	Awarded a fellowship for attaining the degree of “Dottore di Ricerca” in Sapienza University of Rome.
Khajeh Nasir Toosi University of Technology (2013)	Ranked 2 nd among all M.Sc. graduates in Inorganic Chemistry, Iran.
Khajeh Nasir Toosi University of Technology (2011)	Admitted to pursuing graduate studies without entrance examination (only granted to the top 5% of students), Iran.
Khajeh Nasir Toosi University of Technology (2011)	Ranked 3 rd among all B.Sc. graduates in Applied Chemistry, Iran.

Bibliometric Indicators

H index	8 (Source: Google Scholar, accessed on 20 total publications)
Total citations	267 (Google Scholar)

Language skills and Competences

Native language	Persian
Other languages	English, Italian
• Writing	excellent, very good (B1 level)
• Reading	excellent, very good (B1 level)
• Listening and speaking	excellent, very good (B1 level)

Organizational Skills

Mrs. Roya Binaymottagh has a 11-year scientific background in medical application of nanomaterials, such as drug delivery and cancer cell imaging. She is highly motivated to participate in frontier topics in medicinal sciences, supported by a strong academic background including high score published papers, reviews, and patents, talented researcher, and several international conferences.

Technical Skills and Competences

Synthesis of hybrid gold nanoclusters/magnetic nanoparticles functionalized by MUC-1 aptamer for MCF-7 cancer cell imaging and specific drug delivery (1 patent and 1 paper).

Synthesis of magnetic/gold nanoparticles for detection and collection of HL-60 cancer cells (1 paper).

Synthesis, formulation, and characterization of peptide-based hydrogels and impregnation of them with different metal and metal oxides nanoparticles (15 papers and reviews).

Date: 27 November 2024