

## CURRICULUM VITAE

Alessandro Bertucci

### PERSONAL INFORMATION

Birthplace: *Parma, Italy*

Date of birth: *26/04/1987*

Nationality: *Italian*

E-mail: *alessandro.bertucci@uniroma2.it, abertucci@ucsd.edu*



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### EDUCATION

**Ph.D.** Chemical Sciences      Mar 2015

*Co-supervised French-Italian PhD program ("Doctorat en Co-tutelle")*

Laboratory of Supramolecular Biomaterials and Chemistry,  
Institut de Sciences et d'Ingénierie Supramoléculaires (I.S.I.S.),  
University of Strasbourg, France

Advisor: **Prof. Luisa De Cola**

Department of Chemistry,  
University of Parma, Italy

Advisor: **Prof. Roberto Corradini**

Topics: *Nucleic Acid Technology, Artificial Nucleic Acids, Biosensors, Bioanalytical Chemistry, Materials Chemistry, Nanomaterials, Supramolecular Chemistry, Drug Delivery, Hybrid Materials, Nanomedicine.*

**M.Sc.** Analytical Chemistry (*cum laude*)      Oct 2011

Department of Chemistry, University of Parma, Italy

Supervisor: **Prof. Maria Careri**

Topics: *Mass Spectrometry, HPLC-MS, Validation of Analytical Methods*

**B.Sc.** Chemical Sciences and Technologies (*cum laude*)      Sept 2009

Department of Chemistry, University of Parma, Italy

Supervisor: **Prof. Claudio Mucchino**

Topics: *Analytical Chemistry, Mass Spectrometry*

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### POSTDOCTORAL

Jan 2017 – current      **Marie Skłodowska-Curie Global Research Fellow**

**"MIRNANO"** – Multifunctional miRNA-targeting nanodevices for pluripotent cancer theranostics

Department of Chemistry and Biochemistry, University of California San Diego, La Jolla, CA, USA

Advisor: **Prof. Michael J. Sailor**

Department of Chemical Sciences and Technologies, University of Rome Tor Vergata, Rome, Italy

Advisor: **Prof. Francesco Ricci**

Topics: *Nanomaterials, Drug Delivery, Gene Therapy, DNA and RNA Nanotechnology, Nanomedicine, Hybrid Materials, microRNAs, Bioanalytical Chemistry, Biomaterials.*

May 2016 – Nov 2016 “**Endeavour Research Fellow**”

Department of Chemical and Biomolecular Engineering, The University of Melbourne, Australia  
Nanostructured Interfaces and Materials Science Group  
Advisor: **Prof. Frank Caruso**

Topics: *Intracellular Imaging, Super Resolution Microscopy, Nanomaterials, DNA nanotechnology*

May 2015 – May 2016

Department of Chemical Sciences and Technologies, University of Rome Tor Vergata, Rome, Italy  
Laboratory of Biosensors and Nanomachines  
Advisor: **Prof. Francesco Ricci**

Topics: *DNA and RNA Nanotechnology, Bio-Supramolecular Chemistry, Biosensors, Molecular Nanomachines, Bioanalytical Chemistry*

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## VISITING

Jan 2015 – Mar 2015 Visiting **PhD Student**

PoliFab micro and nanotechnology center, Polytechnic University of Milan, Italy  
Supervisor: **Prof. Riccardo Bertacco**

Topics: *Microcontact Printing, Hybridization Platforms, Hybrid Materials, Lab-on-chip*

Sep 2015 – Jan 2016 Visiting **Postdoctoral Researcher**

Department of Chemistry and Biochemistry, University of California San Diego, La Jolla, CA, USA  
Advisor: **Prof. Michael J. Sailor**  
Sanford Burnham Prebys Medical Discovery Institute, La Jolla, CA, USA  
Advisor: **Prof. Erkki Ruoslahti**

Topics: *Nanomedicine, Porous Silicon Nanoparticles, Hybrid Materials, Drug Delivery*

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## PUBLICATION RECORD

1. **A. Bertucci**, J. Guo, N. Oppmann, A. Glab, F. Ricci, F. Caruso, F. Cavalieri  
Probing transcription factor binding activity and downstream gene silencing in living cells with a DNA nanoswitch  
**Nanoscale** 2018, 10, 2034-2044
2. **A. Bertucci**, A. Porchetta, F. Ricci  
Antibody-templated assembly of an RNA mimic of Green Fluorescent Protein  
**Anal. Chem.** 2018, 90, 1049-1053  
*Among “most read articles” of Analytical Chemistry (December 2017)*  
*Featured in the Front Cover of Analytical Chemistry*
3. E. J. Kwon, M. Skalak, **A. Bertucci**, G. Braun, F. Ricci, E. Ruoslahti, M. J. Sailor, S. N. Bhatia  
Porous Silicon Nanoparticle Delivery of Tandem Peptide Anti-Infectives for the Treatment of Pseudomonas aeruginosa Lung Infections  
**Adv. Mater.** 2017, 29, 1701527  
*Featured in the Frontispiece of Adv. Mater.*  
*Featured in the following news media (MIT News, EurekAlert, PhysOrg, etc.).*  
*Featured in Science and Translational Medicine (Editor’s Choice – “Resistance is Futile”, STM 2017, 9, 403)*

4. A. Manicardi, <sup>#</sup> **A. Bertucci**, <sup>#</sup> A. Rozzi, R. Corradini,  
A Bifunctional Monomer for On-Resin Synthesis of Polyfunctional PNAs and Tailored Induced-Fit Switching Probes  
**Org. Lett.** 2016, 18, 5452-5455  
*# These authors contributed equally*
5. R. Castagna, **A. Bertucci**, E. A. Prasetyanto, M. Monticelli, D. V. Conca, M. Massetti, P. P. Sharma, F. Damin, M. Chiari, L. De Cola, R. Bertacco  
Reactive microcontact printing of DNA probes on (DMA-NAS-MAP) co-polymer-coated substrates for efficient hybridization platforms  
**Langmuir** 2016, 32, 3308-3313
6. E. A. Prasetyanto, **A. Bertucci**, D. Septiadi, R. Corradini, P. Castro-Hartmann, L. De Cola  
Breakable hybrid organo-silica nanocapsules for protein delivery  
**Angew. Chem. Int. Ed.** 2016, 55, 3323-3327  
*Highlighted as Hot Paper in Angew. Chem.*  
*Featured in the Inside Cover of Angew. Chem.*
7. **A. Bertucci**, E.A. Prasetyanto, D. Septiadi, A. Manicardi, E. Brognara, R. Gambari, R. Corradini, L. De Cola  
Combined delivery of temozolomide and anti-miR221 PNA using mesoporous silica nanoparticles induces apoptosis in resistant glioma cells  
**Small** 2015, 11, 5687-5685
8. **A. Bertucci**, A. Candiani, S. Giannetti, A. Manicardi, A. M. Cucinotta, G. Spoto, M. Konstantaki, S. Pissadakis, S. Selleri, R. Corradini  
Detection of Unamplified Genomic DNA by a PNA-based Microstructured Optical Fiber (MOF) Optofluidic system with Bragg-Grating  
**Biosens. Bioelectron.** 2015, 63, 248-254
9. **A. Bertucci**, H. Lülfi, D. Septiadi, A. Manicardi, R. Corradini, L. De Cola  
Intracellular delivery of Peptide Nucleic Acid and organic molecules using zeolite-L nanocrystals  
**Adv. Health. Mater.** 2014, 3, 1812-1817
10. H. Lülfi, **A. Bertucci**, D. Septiadi, R. Corradini, L. De Cola  
Multifunctional inorganic nanocontainer for DNA and drug delivery into living cells  
**Chem. Eur. J.** 2014, 20, 10900-10904  
*Featured in the Front Cover of Chem. Eur. J.*
11. A. Candiani, **A. Bertucci**, S. Giannetti, M. Konstantaki, A. Manicardi, S. Pissadakis, A. Cucinotta, R. Corradini, S. Selleri  
Label-free DNA biosensor based on a peptide nucleic acid-functionalized microstructured optical fiber - Bragg grating,  
**J. Biomed. Opt.** 2013, 18, 057004

### **Book Chapters**

1. **A. Bertucci**, A. Manicardi, R. Corradini  
Advanced Molecular Probes for Sequence-Specific DNA Recognition  
Detection of non-amplified Genomic DNA, G. Spoto, R. Corradini Eds., Springer, Dordrecht, The Netherlands **2012**
2. **A. Bertucci**, S. Silvestrini, R. Corradini, L. De Cola  
Loading of PNA and other molecular payloads in inorganic nanostructures for theranostics  
DNA Nanotechnology, Humana Press, New York, NY **2018**

## **Manuscripts under review and in preparation**

12. M. Wojnilowicz, A. Glab, **A. Bertucci**, F. Caruso, F. Cavalieri.  
Super-Resolution Imaging of Proton Sponge-Triggered Rupture of Endosomes and Cytosolic Release of siRNA *under review ACS Nano*
  13. J.M. Zuidema, **A. Bertucci**, J. Kang, F. Ricci, M.J. Sailor  
Hybrid polymer/porous silicon nanofibers for tunable release of functional nucleic acids  
*Submitted*
  14. **A. Bertucci**, K-H. Kim, J. Kang, J.M. Zuidema, S.H.Lee, E.J. Kwon, D. Kim, S.B. Howell, F. Ricci, E. Ruoslahti, H-J. Jang, M.J. Sailor  
Tumor-targeted microRNA-silencing porous silicon nanoparticles for ovarian cancer therapy  
*In preparation*
  15. J.M. Zuidema, C. Dumont, **A. Bertucci**, J. Kang, J. Wang, L. Shea, M.J. Sailor  
Controlled release of multiple therapeutics from porous silicon/PLGA nanofibers enhances neurite extension  
*In preparation*
  16. **A. Bertucci**, A. Porchetta  
Programmable RNA-based systems for diagnostic applications  
*In preparation*
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## **PATENTS**

1. L. De Cola, E. A. Prasetyanto, **A. Bertucci**, D. Septiadi  
Disintegratable core/shell silica particles for encapsulating and releasing bioactive Macromolecules  
WO2015189402 A1  
US Patent 15/318,189
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## **SCHOLARSHIPS, FELLOWSHIPS, GRANTS, CERTIFICATIONS**

- **French Embassy in Italy** 2013  
“Ministero Affari Esteri” MAE Grant 778588G  
PhD Scholarship for a “Doctorat en Co-Tutelle” (Co-supervised Doctorate)  
University of Strasbourg, France – University of Parma, Italy
- **Endeavour Research Fellowship** 2016  
#5574, Australian Government, Department of Education and Training  
Postdoctoral research fellowship at The University of Melbourne, Australia
- **Marie Skłodowska-Curie Global Research Fellowship** 2017  
European Commission - Grant number 704120 – “MIRNANO”  
University of California San Diego, La Jolla, CA, USA (Prof. M. J. Sailor)  
University of Rome Tor Vergata, Rome, Italy (Prof. F. Ricci)
- Marie Skłodowska-Curie Actions (MSCA) **Research and Innovation Staff Exchange (RISE)** 2017  
European Commission - Grant agreement No. 778133 – “Nano-OligoMed” (PI: Luisa De Cola, University of Strasbourg)  
Co-author and Key Person of the Sailor lab, University of California San Diego, CA, USA

- **French Scientific National Qualification, II Grade** 2017  
Qualification n 17231303969 – Section 31, Theoretical, Physical, Analytical Chemistry  
“Qualification à Maître de conférences- Section 31-Chimie théorique, physique, analytique”
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## CONTRIBUTIONS TO CONFERENCES

1. Italian Chemical Society, “Chemistry Day” of Emilia-Romagna (“*XII Giornata della Chimica dell’Emilia-Romagna*”) - Ferrara, Italy, 2012  
**Poster**
  2. MicroRNA: from basic research to therapeutic applications - Ferrara, Italy, 2013  
**Talk**
  3. Italian Chemical Society, “Chemistry Day” of Emilia-Romagna (“*XIII Giornata della Chimica dell’Emilia-Romagna*”) - Bologna, Italy, 2013  
**Talk**
  4. Joint symposium University of Strasbourg (FR) – University of Groningen (NL) - Strasbourg, France, 2014  
**Talk**
  5. XII International Conference on Nanostructured Materials “Nano2014” - Moscow, Russia, 2014  
**Poster**
  6. Summer school on Nanotechnology and innovation, Tel-Aviv University - Tel-Aviv, Israel, 2014  
**Poster**
  7. Youngs Forum on Supramolecular and Material Chemistry - Padua, Italy, 2014  
**Talk**
  8. V International Conference on Multifunctional, Hybrid and Nanomaterials, Lisbon, Portugal, 2017  
**Talk**
  9. 2017 Materials Research Society Fall Meeting “MRS 2017” – Boston, MA, USA, 2017  
**Poster**
  10. Porous semiconductors – Science and technology PSST 2018 – La Grande Motte, France, 2018  
**Poster**
  11. Biosensors 2018 – Miami, FL, USA, 2018  
**Talk**
  12. 7<sup>th</sup> European Chemistry Congress EuCheMS 2018, Liverpool, UK, 2018  
**Talk**
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## AWARDS

- Finalist of the **2018 ISSNAF** (“Italian Scientists and Scholars in North America Foundation”) **Award for Young Investigators – Environmental Sciences, Astrophysics, and Chemistry**. Finalist talk to be delivered Oct 23, 2018 at the Italian Embassy in Washington DC.
  - **‘Outstanding PhD Thesis’** Award, granted by Naturalia and Biologia Association (Paris, France). The award provides economical support to cover the costs associated to printing and dissemination of best PhD Thesis in Science in France.
  - **Tel-Aviv University, Israel, Scholarship** awarded to attend the *Summer school on Nanotechnology and innovation* 2014, Tel-Aviv, Israel.
  - **“Best Oral Communication”** Award at ‘MicroRNA: from basic research to therapeutic applications’, Ferrara, Italy, 2013
  - Among **“Best Oral Communications”** at Italian Chemical Society, “Chemistry Day” of Emilia-Romagna (*“XIII Giornata della Chimica dell’Emilia-Romagna”*) - Bologna, Italy, 2013
  - PhD Dissertation evaluated as **“Excellent”** by both University of Strasbourg, FR, and University of Parma, IT.
  - **“Best Poster”** award Italian Chemical Society, “Chemistry Day” of Emilia-Romagna (*“XII Giornata della Chimica dell’Emilia-Romagna”*) - Ferrara, Italy, 2012
  - **“Best Poster Award Nominee”** at 2017 Materials Research Society Fall Meeting “MRS 2017” – Boston, MA, USA, 2017
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## LANGUAGES

- **Italian:** Mother Tongue
  - **English:** Fluent
  - **French:** Intermediate
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## MEMBERSHIPS

- Member of the **Italian Chemical Society – Division of Analytical Chemistry**  
Card n 18427
- Member of the **Materials Research Society**