



Exponent[®]
Engineering & Scientific Consulting

Cristina Rodriguez-Quijada, Ph.D.

Scientist | Biomedical Engineering & Sciences
1075 Worcester St. | Natick, MA 01760
(508) 903-4631 tel | crodriguez@exponent.com

Professional Profile

Dr. Rodriguez-Quijada specializes in the assessment of materials used throughout the pharmaceutical and medical device fields. She supports clients in the design and development of diagnostic and therapeutic systems, by researching the interface between biology and materials. She has expertise identifying and characterizing proteins, bacteria and viruses from diverse biological fluids and biomaterial surfaces with biochemical techniques.

Dr. Rodriguez-Quijada has a broad experience using conventional bioassays such as immunoassays (ELISA, Western blot, immunochromatographic assays), proteomic assays (LC-MS, SDS-PAGE), cell culture, flow cytometry and microbiology techniques. She routinely utilizes imaging techniques such as SEM, TEM, fluorescence microscopy and confocal imaging to assess the performance of theranostic systems. She is skilled in nanoparticle characterization techniques such as dynamic light scattering and zeta potential. In addition, she has considerable experience with a variety of spectroscopic techniques including UV-Vis, Raman and Nuclear Magnetic Resonance (NMR) as well as material characterization techniques including Gel Permeation Chromatography (GPC), mechanical testing and rheometry.

Prior to joining exponent, she completed her Ph.D. work in Biomedical Engineering and Biotechnology at the University of Massachusetts Boston. Her dissertation focused on the study of the interactions between inorganic materials and biomolecules to enhance the performance and capabilities of biomaterials used as therapeutic or diagnostic tools. Dr. Rodriguez-Quijada has been awarded multiple fellowships and awards from private and public entities that supported her undergraduate and graduate work. She is an author on multiple peer-reviewed publications and has shared her research interests at several international and domestic conferences.

Academic Credentials & Professional Honors

Ph.D., Biomedical Engineering and Biotechnology, University of Massachusetts, Boston, 2020

M.S., Bioengineering, Universitat Ramon Llull (IQS School of Engineering), 2016

B.S., Chemical Engineering, Universitat Ramon Llull (IQS School of Engineering), 2014

Fellowships:

College of Science and Mathematics Dean's Doctoral Research Fellowship 2019, 2020

Rafael del Pino Fellowship 2017 – 2019

BIOKIT fellowship 2014

Fellowship from Fundacion de Empresas IQS 2010

Awards:

Bollinger Grant from UMass Boston 2019

Beacon Student Success Fellowship from UMass Boston 2018

Herbert Lipke Memorial Endowment Travel Fund from UMass Boston 2018

Goranson Award from UMass Boston 2016, 2018

Internship Grant CRUE CEPYME award from Banco Santander 2013

Prior Experience

Visiting Student, Fraunhofer Center for Manufacturing Innovation, July 2015-June 2016

Undergraduate Research Assistant, Sagetis Biotech, May 2014-October 2014

Process and Project Engineer Assistant, CPQ Ingenieros, March 2014-July 2014

Undergraduate Research Assistant, Universitat Ramon Llull (IQS School of Engineering), June 2013-September 2013

Languages

Spanish

Publications

Rodriguez-Quijada C, and J. B. Dahl. Non-contact microfluidic mechanical property measurements of single apoptotic bodies. *Biochimica et Biophysica Acta (BBA) - General Subjects* 2020; 1865, 4, 129657.

Rodriguez-Quijada C, Gomez-Marquez J, Hamad-Schifferli K. Repurposing Old Antibodies for New Diseases by Exploiting Cross-Reactivity and Multicolored Nanoparticles. *ACS Nano* 2020; 14, 6, 6626-6635.

Rodriguez-Quijada C, Lyons C, Santamaria C, Quinn S, Tlusty M, Shiaris M, Hamad-Schifferli K. Optimization of paper-based nanoparticle immunoassays for direct detection of the bacterial pathogen *V. parahaemolyticus* in oyster hemolymph. *Analytical Methods* 2020; 12, 23, 3056-3063.

Rodriguez-Quijada C, de Puig H, Sánchez-Purrà M, Yelleswarapu C, Evans J, Celli J, Hamad-Schifferli K. Protease Degradation of Protein Coronas and its Impact on Cancer Cells and Drug Payload Release. *ACS Applied Materials and Interfaces* 2019; 11, 16, 14588-14596.

Russo L, Sánchez-Purrà M, Rodriguez-Quijada C, Leonardo B, Puntos V, Hamad-Schifferli K. Detection of Resistance Protein A (MxA) in Paper-based Immunoassays with Surface Enhanced Raman Spectroscopy with AuAg Nanoshells. *Nanoscale* 2019; 11, 10819-10827.

Hristov D, Rodriguez-Quijada C, Gomez-Marquez J, Hamad-Schifferli K. Designing Paper-based Assays for Biomedical Applications. *Sensors* 2019; 19, E554.

Sánchez-Purrà M, Roig-Solvas B, Rodríguez-Quijada C, Leonardo B, Hamad-Schifferli K. Reporter Selection for Nanotags in Multiplexed Surface Enhanced Raman Spectroscopy Assays. *ACS omega* 2018; 3, 9, 10733-10742.

Rodríguez-Quijada C, Sánchez-Purrà M, de Puig H, Hamad-Schifferli K. Physical Properties of Biomolecules at the Nanomaterial Interface. *Journal of Physical Chemistry* 2018; 122, 11, 2827-2840.

Rodríguez-Quijada C, Hamad-Schifferli K. Applications of Plasmonic Nanomaterials for Phototriggered Theranostics. *Handbook of Nanomaterials for Cancer Theranostics* 2018; Chapter 5, 125-142.

Sánchez-Purrà M, Roig-Solvas B, Versiani A, Rodríguez-Quijada C, de Puig H, Bosch I, Gehrke L, Hamad-Schifferli K. Design of SERS Nanotags for Multiplexed Lateral Flow Immunoassays. *Molecular Systems Design & Engineering* 2017; 2, 401-409.

Presentations

Rodríguez-Quijada C, Hamad-Schifferli K. Using Gold Nanoparticles for Diagnostics and Sensing in Low Cost Devices. Oral Communication. American Chemical Society National Meeting (ACS), San Diego, CA, 2019.

Rodríguez-Quijada C, Hamad-Schifferli K. Rapid Paper Tests for Detection of Pathogenic Vibrios in Aquaculture. Oral Communication. American Chemical Society National Meeting (ACS), San Diego, CA, 2019.

Rodríguez-Quijada C, Shiaris M, Tlustý M, Hamad-Schifferli K. *Vibrio parahaemolyticus* (Vp) Detection with Rapid Test Immunoassays. Poster presentation. Annual Environmental Research Colloquium, Boston, MA, 2019.

Rodríguez-Quijada C, de Puig H, Sánchez-Purrà M, Yelleswarapu C, Celli J, Hamad-Schifferli K. Exposure to Proteolytic Environment from Pancreatic Tumor Cells Leads to Protein Corona Degradation. Oral Communication. International Conference on Nanomedicine and Nanobiotechnology, Rome, Italy, 2018.

Rodríguez-Quijada C, de Puig H, Sánchez-Purrà M, Yelleswarapu C, Celli J, Hamad-Schifferli K. Protein Corona Degrades when Exposed to the Proteolytic Environment of Pancreatic Ductal Adenocarcinoma. Oral Communication. American Chemical Society National Meeting (ACS), Boston, MA, 2018.

Rodríguez-Quijada C, de Puig H, Sánchez-Purrà M, Yelleswarapu C, Celli J, Hamad-Schifferli K. Protein Corona Degradation in Tumor Microenvironment Leads the Fate and Theranostic Efficacy of Gold Nanoparticles. Poster presentation. The Networking Exchange at the Broad Institute, Boston, MA, 2018.

Rodríguez-Quijada C, Cramer G, Petrovic L, Celli J, Hamad-Schifferli K. Protein Corona Evolution in Tumor Microenvironment Defines the Fate and Theranostic Efficacy of Nanocarriers. Oral Communication. Material Research Society (MRS) Fall, Boston, MA, 2017.

Peer Reviewer

Plos One