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Group Leader
Max Planck Tandem Group in Nanobioengineering
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Personal Details

Place of birth: Medellín (Colombia).
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Qualifications

- ***Ph.D. in Chemistry.*** "Chemical Sensors for Environmental Applications". Institute for Microelectronics of Barcelona and University of Barcelona. Spain, 2008.
- ***M.Sc. Analytical Chemistry.*** "Solid-state microelectrodes for monitoring environmental parameters in bentonitic barriers". Institute for Microelectronics of Barcelona and University of Barcelona. Spain, 2004.
- ***B.Sc. Chemistry.*** The University of Antioquia. Medellín – Colombia, 1998
- ***Tech. Chemistry.*** The University of Antioquia. Medellín – Colombia, 1992

Expertise and Research Interest

- Nano-bioengineering, nano-biotechnology, nanomotors, micro(nano)carriers.
- Nano-encapsulation, selective and controlled drug delivery.
- Chemical (bio)sensors and nano(micro)devices.
- Advanced nanoscale materials and methods for detection and separation of biomolecules.
- Integration of nanostructures and biomolecules for the development of functional materials.
- Nanomaterial-based hybrids for enhanced sensing.
- Surface and supramolecular chemistry.
- Electrochemistry and analytical chemistry.

Attendance to Specialized Courses

- *Global Infectious Diseases Research Network Grant Proposal Workshop.*
  University of Texas Medical Branch and the University of Antioquia. Medellín, August 23-26, 2018.
- *Nanotechnology for Sensors and Microsystems.*
  In the 6th Ibersensor congress. Instituto de Pesquisas Tecnológica. Sao Paulo, Brazil. November 24, 2008.
- *Nanotechnology: Fundamentals and applications.*
  In a Master curse, Microelectronic National Center, University Autonomous of Barcelona. Barcelona, Spain, 2008.
- *Nanotechnology in biomedicine.*
  In the extraordinary curses of the University of Zaragoza. Jaca (Huesca) – Spain, 2007.
- *Systems of immobilization and detection of biomolecules in sensors*
  In the 5º Ibersensor congress. Faculty of Sciences. University of La República, Montevideo – Uruguay, 2006.
- *Microsystems and sensors: Fabrication, characterization and application to environmental samples.*
  In the 5º Ibersensor congress. Faculty of Sciences. University of La República, Montevideo –

Uruguay, 2006.
- *II Workshop of Microsystems, sensors and microfluidic.*
Instituto de Pesquisas Tecnológicas, Sao Paulo – Brasil, 2005.
- *IV Day of research and technologic development in the management of radioactive waste.*
Enresa. Barcelona – Spain, 2003.
- *Chromatography techniques to solve environmental problems*
- *Prevention of risks in the chemical industry*
- *Instrumental techniques applied in the environmental field*
- *Chemistry and behavior of the pollutants in the environment*
The University of Barcelona. Barcelona - Spain 2003.

Previous Positions

- *Catalan Institute of Nanoscience and Nanotechnology (ICN2).* Barcelona – Spain.
Severo Ochoa Excellence Fellow, April 2015- October 2016.
- *Microbia Environnement (Observatoire Oceanologique de Banuiñs sur Mer)* – France.
Research Scientist, January-April, 2015; and consultant until date.
- *Department of Nanoengineering (University of California San Diego)* – USA.
Postdoctoral researcher, 2010-2014.
- *Université Pierre et Marie Curie (Observatoire Oceanologique de Banyuls sur Mer)* – France.
Postdoctoral researcher, 2009-2010.
- *Institute for Microelectronics of Barcelona.* Barcelona – Spain.
Postdoctoral researcher, 2008-2009.
Doctoral research scholarship FPI from the Ministry of Science and Technology, 2004-2008
Pre-doctoral research contract, 2003-2004.
- *Panamco Cocacola.* Medellín - Colombia, 2000-2002. Quality Control of drinking and wastewater.
- *Centro de nivelaciones académicas.* Medellín – Colombia, 1997-2001. Teacher of Chemistry and Natural Sciences.
- *Laboratory of Public Health.* Medellín– Colombia, 1994-1996. Laboratory technician.
- *University of Antioquia.* Medellín – Colombia. Practice Technician: Laboratory of General and Organic chemistry (1992), and Analytical chemistry (1992 and 1994).

Consulting

- *Microbia Environnement (Observatoire Oceanologique de Banuiñs sur Mer) – France.* Acting as a consultant in Research & Development on Environmental Microbiology (2015).

Funding Received for Education and Awards

- Shizu y Yu Takeuchi Award to the best master thesis 2021, Academy of Exact, Natural and Physics Sciences from Colombia. Daniel S. Alzate. Genosensors for differential detection of zika virus.
- Best research work as an oral presentation in the Nanomedicine section. Daniel S. Alzate, Nestor S. Cajigas, Sara M. Robledo, Carlos E. Muskus, Jahir Orozco*, Genosensores para el Diagnóstico de Infecciones Virales Transmitidas por Mosquitos.
- Best research work as an oral presentation in the Nanobiomaterials section. Nestor S Cajigas, Daniel Alzate, Jahir Orozco*. Desarrollo de Nano-Bioconjugados basados en Nanopartículas de Oro y Hebras de ADN para Amplificación de la Señal en Biosensado. Both in IX Simposio de Química Aplicada (IX Siquia) y I Congreso Internacional de Nanoquímica, Nanofísica y Nanomedicina (ICINNN), 21-23 de agosto 2019, Armenia, Colombia.
- Outstanding professional activity. Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia, Medellín, Colombia, 2017.
- Severo Ochoa Excellence Fellow. Catalan Institute of Nanoscience and Nanotechnology (ICN2). Barcelona

Spain, April 2015- October 2016.
- Outstanding reviewer in Biosensors and Bioelectronics (2018), Sensors and Actuators B: Chemical (2015 and 2017), Journal of Electroanalytical Chemistry (2018).
- Beatriu de Pinos Postdoctoral Grant, BP-B DGR-2011 from L'Agència de Gestió d'Adjuts Universitais i de Recerca de Catalunya, Spain, 2012, (declined).
- Beatriu de Pinos Postdoctoral Grant, BP-A 00127, from L'Agència de Gestió d'Adjuts Universitais i de Recerca de Catalunya, Spain, 2010-2012.
- Ph.D. Chemistry, Cum Laude with European Mention. University of Barcelona, 2008.
- Research Scholarship from the FPI program (Ministry of Science and Education, Spain), 2004-2008.
- 4 highly cited papers, (papers that received enough citations to place it in the top 1% of its academic field based on a highly cited threshold for the field and publication year (from Essential Science Indicators SM).

Teaching and Mentoring Activities

Training and teaching:

- **Introduction to Biosensors Based on Nanobioengineering** in the course Introduction to Biosensors. Ibersensor, Portugal 8-9 Sept 2021 (online).
- **Nanobioingeniería de Plataformas Funcionales y Biosensores** (5 credits), Chemical Sciences Postgraduate Program, Universidad de Antioquia, Medellín, Colombia, August-December, 2021.
- **Nanobioingeniería de Plataformas Funcionales y Biosensores** (4 credits), Chemical Sciences Postgraduate Program, Universidad de Antioquia, Medellín, Colombia, August-December, 2019.
- **Ultrasensitive electrochemical nanobiosensors for monitoring of a panel of tumoral biomarkers associated with the early diagnostic of colon cancer, at the point-of-care**. First workshop in Nanobiocancer. Universidad Pontificia Bolivariana, Medellín Colombia, 20-21 Junio, 2019.
- **Introducción a la virología y estrategias de diagnóstico basadas en nanobiosensores** (2 credits). Corporación Académica Ciencias Básicas Biomédicas. University of Antioquia, January, 2019.
- **Diseño, desarrollo y uso de herramientas de dignóstico basadas en biosensores.** Dirección Seccional de Salud del Amazonas, 29-30 de noviembre de 2018.
- **Introduction to Nanobioengineering,** (4 credits), Chemical Sciences Postgraduate Program, Universidad de Antioquia, Medellín, Colombia, February-June, 2018.
- **Second workshop in nanomotors, theory and practice**. Dresden, Germany, August 2017. https://cfaed.tu-dresden.de/micromotors-summerschool
- **Biosensoremoval Nanotechnologies,** Master in Industrial Chemisty, University Autonomous of Barcelona, October 2015.
- **Biosensoremoval Nanotechnologies**, Master in Nanotecnología, University Autonomous of Barcelona, October 2015.
- **Nanomaterials-based biosensing systems and applications in diagnostics. "Nanomotors: a new dimension of target isolation and (bio) sensing based on motion Open Knowledge Program**. Module 4: Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Sept the 16th, 2015.
- **DNA-nanobiosensors for sensing pathogens,** Lectures and practical work. Master 2, Quality, Environment and Sanitary Security (QUESS master), Environmental microbiology teaching unit, University Pierre and Marie Curie, Paris 06, France, Banyuls sur mer. Scholar year, 2010.
- **Electrochemical genosensors for toxic algae monitoring.** First workshop on nanobiosensors for water monitoring, Lectures and practical work. Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain. March 24-26, 2015.
- ***Co-supervising and mentoring:***

PhD Thesis: Pedro Alejandro Mena. Nanoassamblies for disease diagnostic and intervention. Posgrado en Ciencias Químicas, Universidad de Antioquia, 2021.

PhD Thesis: Dayana Soto. Nanobioengineered platforms for electrochemical biosensing. Posgrado en Ciencias Químicas, Universidad de Antioquia, 2022.

PhD Thesis: Susana Mejía. Functional nanocarriers for delivering therapeutic agents against intracellular infectious. Corporación de Ciencias Básicas Biomédicas, Universidad de Antioquia, 2022.
PhD Thesis: Danilo Echeverri. Glycan-based biosensors for diagnostic of diseases. Posgrado en Ciencias Químicas, Universidad de Antioquia, 2023.
PhD Thesis: Jennifer Quinchía. Ultrasensitive biosensors for determination of colorectal cancer-related biomarkers. Posgrado en Ciencias Químicas, Universidad de Antioquia, 2023.
PhD Thesis: Andrés Felipe Curz Pacheco. Nanostructured electrochemical biosensors: synthesis, characterization and applications in diagnostic. Posgrado en Ciencias Químicas, Universidad de Antioquia, 2023.
PhD Thesis: Elkin Leandro Escobar Chavez. Development of nanocarriers for diabetes treatment. Posgrado en Biotecnología, Universidad de Antioquia, 2023.
PhD Thesis: David José Pérez Cardona. Electrochemical biosensor for monitoring IL-5 in serum. Corporación de Ciencias Básicas Biomédicas, Universidad de Antioquia, 2023.
PhD Thesis: Miguel Orlando Suárez. Structural analysis and toxic activity determination of new parasporins derived from PhD Thesis: PS2Aa1 of Bacillus thuringiensis subsp. dakota 4R2 obtained by Directed evolution. Corporación de Ciencias Básicas Biomédicas, Universidad de Antioquia, 2023.
Master thesis: Arturo Sánchez Toro. Nanotransportadores poliméricos biocompatibles para la liberación controlada de principios terapéuticos. Posgrado en Ciencias Químicas, Universidad de Antioquia, 2020.
Master thesis: Nestor Sebastián Cajigas Bastidas. Synthesis and characterization of nano-bioconjugates for signal amplification in biosensing. Posgrado en Ciencias Químicas, Universidad de Antioquia, 2020.
Master thesis: Daniel Alzate Gutiérrez. Nanobiosensores para la detección diferencial del virus del zika. Corporación de Ciencias Básicas Biomédicas, Universidad de Antioquia, 2019.
Master thesis: Pedro Alejandro Mena. Peptide-functionalized photosensitive nanocarriers for specific drug delivery in cardiomyocytes, at Biomedical Engineering Department, Universidad Pontificia Bolivariana, Medellín, March the 22nd, 2018.
Master thesis: Viviana Vásquez. Nanobiomaterial-based sensor for SARS-CoV-2 detection. Posgrado en Ingeniería, Universidad de Antioquia, 2022.
Master thesis: Elisa Hernández. Photosensitive Nanocarries for dug encapsulation. Posgrado en Ingeniería, Universidad de Antioquia, 2023.
Master thesis: Roberto Pol, Graphene Oxide-based Magnetic Janus Micromotors for Decontamination of Persistent Organic Pollutants, at ICN2, Master in industrial chemistry and introduction to chemical research, UAB, Barcelona, Sept the 10th, 2015.
Final Degree Project: Christian Vila Parrondo, Functional Cellulose as a versatile platform for multiple applications, at ICN2, Nanoscience and Nanotechnology program (Faculty of Sciences, UAB), Barcelona, July the 7th, 2016.
Enterprise practice: Christian Vila Parrondo, assistance in fabrication and characterization of micromotors, at ICN2, Nanoscience and Nanotechnology program (Faculty of Sciences, UAB), Barcelona, January-July, 2016.

- In an unofficial capacity, of 4 undergraduates and 1 master UCSD students, 2 visiting Master students and 4 PhD visiting students.

Reviewer

Editorial board:

Molecules, Nanochemistry section. Since 2019.

Reviewer:

Fellows: Schmidt Science Fellows, USA, November 2021.

Projects: Newton Price reviewer, 2018. Banco de la República, 2018-2019.

Journals: Continuous reviewer in Biosensors and Bioelectronics, Sensors and Actuators B: Chemical, Bioelectrochemistry, Talanta, Electroanalysis, Analytical Letters, Sensors, Microarrays, Molecules, Analytical and Bioanalytical Chemistry, Microchemical Journal, International Journal of Molecular Sciences and Journal of AOAC International, Applied Materials Today, Revista Colombiana de Química, Academia Colombiana de Ciencias, Revista de la Academia Colombiana de Ciencias Exactas Físicas y Naturales.

Scientific Committee:

- Permanent Scientific Committee. Ibero-American congress in Sensors, since 2018 until date.
- III Congreso Colombiano de Electroquímica. Universidad Santiago de Cali, Cali-Colombia, October 2-5, 2018.
- II International Meeting on Innovation and Research in Engineering, Science and Food Technology. May 27-30, 2014, Medellín-Colombia.

PhD Thesis Committee:

- Nanotransportadores poliméricos para el tratamiento de la leucemia. Claudia Elena Echeverri Cuartas (Directora Carmiña Gartner), Postgrado en Ciencias Químicas, Universidad de Antioquia, 2018.
- Diseño de un sensor electroquímico basado en la cupla redox NADH/NAD^+ para la caracterización de biorreactores anaerobios. Lucas Hernán Blandón Naranjo (Director: Mario Víctor Vásquez), Postgrado en Ciencias Químicas, Universidad de Antioquia, 2018.
- Preparación y caracterización de partículas auto-ensambladas a partir de (Q-AO):AH portadoras de Celecoxib para el tratamiento de enfermedades reumáticas, Paola Andrea Méndez (Directora: Betty Lucy López), Postgrado en Ciencias Químicas, Universidad De Antioquia, 2017.
- To award a student as an International or European PhD.
  Development of electrochemical devices for the determination of drugs of abuse. Laura Asturias Arribas, University of Burgos (Spain) with the "Doctor international" mention, March, 2013.
- Bioplataformas electroanalíticas versátiles para diagnóstico temprano y fiable de cáncer a diferentes niveles moleculares. Rebeca Magnolia Torrente Rodríguez, ciencias químicas, Universidad Complutense de Madrid, Marzo, 2019.

Master thesis Committee:

- Evaluación de péptidos análogos a la proteína TIR como Moléculas de reconocimiento en biosensores electroquímicos para la detección de Escherichia coli O157:H7 en matrices acuosas. Joshua Hugo Felipe Redondo Ortega, Maestría en Biotecnología, Universidad de Santander, 2021.
- Caracterización de copolímeros en bloque conjugados como vehículos nanoestructurados para Anfotericina B. Elsa Ruth Arias Patrón, Maestría en Ciencias Química, Universidad Nacional de Colombia, Bogotá, 2020.
- Síntesis de Nanopartículas Tipo "Core-Shell" Empleando Polimerización en Emulsión y su Potencial Aplicación como Vehículos para Aceites Esenciales. Edwin Alexander Robayo Chaparro. Facultad de Ciencias, Departamento de Química, Universidad Nacional de Colombia, Bogotá, 2019.

Projects

- Evaluación pre-clínica de una nanoformulacion basada en un extracto natural con potencial actividad antiobesogenica y antidiabética. (Cod. 11589684357). Minciencias, 2021.

P.I. Nanobiosensores para la detección rápida de SARS-CoV-2. Cod. 1115101576765. Minciencias, 2020.

- Biosensor electroquimico para medicion de il-5 en suero, una aproximación al diagnóstico de los síndromes

hiper-eosinofilico y churg-strauss. Cod. 111584467470. Colciencias, 844, 2019.
- Desarrollo de un prototipo fitoterapéutico basado en triterpenos encapsulados en nanovehículos para el tratamiento de la diabetes mellitus tipo 2. Cod. 111580763027C. Colciencias 807-2018.
- Agentes antimicrobianos encapsulados en nanopartículas funcionalizadas con nanobodies: una solución terapéutica para infecciones intracelulares. Cod. 221377757106. Colciencias 777-2017, $347800 dollars.
- P.I. Nanobiosensores electroquímicos ultrasensibles para la monitorización de un panel de marcadores tumorales asociados al diagnóstico temprano de cáncer de colon, en el punto de atención. Cod. FP44842-211-2018. Colciencias 778-2017, $470000 dollars.
- Desarrollo de nanovehículos funcionales para el transporte y liberación específica de principios terapéuticos contra el cáncer de colon. Cod. FP44842- 211-2018Colciencias 778-2017, $470000 dollars.
- P.I. Dual electrochemical magneto-nanosensor for differential diagnosis of Zika virus. Cod: 111574454836 Colciencias 744-2016, $223.000 dollars.
- P.I. Max Planck Society, Colciencias, Universidad de Antioquia and Universidad Nacional de Colombia Special Cooperation Agreement 566, 2014 to found the Max Planck Tandem Groups in Universidad de Antioquia, Medellín, Colombia, 2016-2021.
- Sensing toxicants in Marine waters makes Sense using biosensors. Microbia Environnement, France. FP7-OCEAN-2013.1. Since January, 2015.
- Efficient bioseparations based on autonomously moving receptor-functionalized artificial nanomotors. Defense Threat Reduction Agency, DTRA Grant HDTRA1-13-1-0002, Department of Nanoengineering, UCSD, USA, December 2012 – November 2014.

Publications

Peer reviewed: *Equal contribution. **Corresponding author.

73. Susana P. Mejía, Daniela Lopez, Luz Elena Cano, Tonny Naranjo, Jahir Orozco***Antifungal encapsulated into ligand-functionalized nanoparticles with high specificity for macrophages.* **Pharmaceuticals** (2022) In revision.
72. Viviana Vásquez, Jahir Orozco** *Personalized medicine for COVID-19 management with electrochemical biosensors.* **Analytical and Bioanalytical Chemistry**, Submitted, 2022.
71. Daniel Alzate, Maria C Lopez-Osorio, Fabián Cortes-Mancera, Maria-Cristina Navas, Jahir Orozco** *Hepatitis e virus genotype 3 detection in wastewater by an electrochemical genosensor.* **Analytica Chimica Acta** 1221 (2022) 340121.
70. Dayana Soto and Jahir Orozco** *Hybrid nanobioengineered nanomaterial-based electrochemical biosensors*. **Molecules** 27 (2022) 3841.
69. Andrés F. Cruz-Pacheco, Jennifer Quinchia, Jahir Orozco** *Cerium oxide-doped PEDOT nanocomposite for label-free electrochemical immunosensing of anti-p53 autoantibodies.* Microchim. Acta, 189 (2022) 228.
68. Sebastian Cajigas, Daniel Alzate, Maritza Fernández, Carlos Muskus, Jahir Orozco** *Electrochemical genosensor for the specific detection of SARS-CoV-2*. Talanta 245 (2022) 123482.
67. Dayana Soto and Jahir Orozco** *Peptide-based simple detection of SARS-CoV-2 with electrochemical readout.* **Analytica Chimica Acta** 1205 (2022) 339739.
66. Viviana Vásquez, Maria-Cristina Navas, Javier A Jaimes, Jahir Orozco** *SARS-CoV-2 Electrochemical immunosensor based on the spike-ace2 complex.* **Analytica Chimica Acta** 1205 (2022) 339718.
65. Danilo Echeverri & Jahir Orozco. *β-1,4-Galactosyltransferase-V colorectal cancer* biomarker *immunosensor with label-free electrochemical detection.* **Talanta** 243 (2022) 123337.
64. Elisa Hernández Becerra, Jennifer Quinchia, Cristina Castro and Jahir Orozco** Light-Triggered Polymersome-Based Anticancer Therapeutics Delivery **Nanomaterials** 12 (2022) 836.
63. David Pérez and Jahir Orozco** *Wearable electrochemical biosensors to measure biomarkers with complex blood-to-sweat partition such as proteins and some hormones*. **Microchimica Acta** 127:189

(2022).

62. Daniel Alzate, Esteban Marín, Jahir Orozco and Carlos Muskus. *Differential detection of zika and its discrimination against dengue and chikungunya viruses based on q-PCR*. **Journal of Virological Methods** 301 (2022) 114459.
61. Miguel O. Suárez-Barrera, Lydia Visser, Paola Rondón-Villarreal , Diego F. Herrera-Pineda, Juan S. Alarcón-Aldana, Anke Van den Berg , Jahir Orozco , Efraín H. Pinzón-Reyes, Ernesto Moreno and Nohora J. Rueda-Forero. *Genetic Modification Approaches for Parasporins Bacillus thuringiensis Proteins with Anticancer Activity* **Molecules** 26 (2021) 7476
60. Pedro Mena-Giraldo and Jahir Orozco** *Photosensitive polymeric Janus micromotor for enzymatic activity protection and enhanced substrate degradation*. **ACS Applied Materials & Interfaces** 14 (2022) 5897−5907.
59. Pedro Mena-Giraldo and Jahir Orozco** *Polymeric Micro/Nanocarriers and Motors for Cargo Transport and Phototriggered Delivery*. **Polymers** 13 (2021) 3920.
58. Maritza Fernández and Jahir Orozco** *Advances in Functionalized Photosensitive Polymeric Nanocarriers*. **Polymers**, 13 (2021) 2464.
57. David J. Perez, Edwin B. Patino, and Jahir Orozco** *Electrochemical Nanobiosensors as Point-of-care Testing Solution to Cytokines Measurement Limitations*. **Electroanalysis** 33 (2021) 1– 29
56. Susana P. Mejía*, Arturo Sánchez*, Viviana Vásquez, Jahir Orozco** *Functional nanocarriers for delivering itraconazole against fungal intracellular infections*. **Frontiers in Pharmacology**, 12 (2021) 685391, doi: 10.3389/fphar.2021.685391
55. Dayana Soto, Manuela Alzate, Jaime Gallego, Jahir Orozco**. *Hybrid nanomaterial/catalase-modified electrode for hydrogen peroxide sensing.* **Journal Electroanalytical Chemistry** 880 (2021) 114826.
54. Cajigas Sebastián, Alzate Daniel, Jahir Orozco**. *Gold/DNA-based nanobioconjugate for electrochemical detection of zika virus*. **Microchimica Acta** 187:594 (2020).
53. Arturo Sánchez, Susana Pamela Mejía, Jahir Orozco** *Recent Advances in Polymeric Nanoparticle-Encapsulated Drugs Against Intracellular Infections*. **Molecules**, 25 (2020) 3760.
52. Sebastian Cajigas, Jahir Orozco**. *Nanobioconjugates for signal amplification in biosensing*. **Molecules**, 25 (2020) 3542.
51. Diana Colorado; Maritza Fernandez; Jahir Orozco; Yasmin Lopera; Diana Lorena Muñoz; Sergio Acin; Norman Balcazar. *Metabolic activity of anthocyanins extracts loaded in non-ionic niosomes in diet-induced obese mice*. **Pharmaceutical Research**, (2020) 37:152
50. Andrés Felipe Cruz-Pacheco, Leonel Paredes–Madrid, Jahir Orozco, Jairo Alberto Gómez-Cuaspud, Carlos R. Batista–Rodríguez and Carlos Andrés Palacio Gómez. *Assessing the Influence of the Sourcing Voltage on Polyaniline Composites for Stress Sensing Applications*. **Polymers** 12 (2020) 1164.
49. Danilo Echeverri, Monika Garg, Daniel Varón Silva, Jahir Orozco**. *Phosphoglycan-sensitized platform for specific monitoring of antiglican IgG and IgM antibodies.* **Talanta** 217 (2020) 121117.
48. Jennifer Quinchia, Danilo Echeverri, Andrés Felipe Cruz-Pacheco, María Elena Maldonado and Jahir Orozco**. *Electrochemical Biosensors for Determination of Colorectal Tumor Biomarkers.* **Micromachines**, 11-4 (2020) 411.
47. Pedro Mena-Giraldo, Sandra Pérez-Buitrago, Maritza Londoño, Isabel C. Ortiz-Trujillo, Lina Hoyos and Jahir Orozco**. *Photosensitive nanocarriers for specific delivery of cargo into cells*. **Scientific Reports** (2020) 10:2110 doi.org/10.1038/s41598-020-58865-z
46. Daniel Alzate, Sebastián Cajigas, Sara Robledo, Carlos Muskus, Jahir Orozco**, *Genosensors for differential diagnosis of zika virus*. **Talanta** 210 (2020) 120648.
45. Ingrid D. Soto, Manuela Alzate, Jaime Gallego, Jahir Orozco**. *Electroanalysis of an iron@graphene-carbon nanotube hybrid material*. **Electroanalysis** 30 (2018) 1521–1528.
44. Luis Baptista-Pires, Jahir Orozco, Pablo Guardia and Arben Merkoçi. Architecting Graphene Oxide Rolled-Up Micromotors: A Simple Paper-Based Manufacturing Technology. **Small** (2018) 17027462017,

1-8.
43. Jie Liu, Eden Morales-Narváez, Jahir Orozco, Teresa Vicent, Guohua Zhong, Arben Merkoçi. *Bioluminescent nanopaper for rapid screening of toxic substances*. **Nano Research** 11 (2018) 114–125.
42. Linda K Medlin, Jahir Orozco. *Molecular Techniques for the Detection of Organisms in Aquatic Environments, with Emphasis on Harmful Algal Bloom Species.* **Sensors** 17 (2017) 1184, doi:10.3390/s17051184
41. Ruslan Álvarez-Diduk, Jahir Orozco and Arben Merkoçi. *Paper strip-embedded graphene quantum dots: a screening device fully operated by a smartphone.* **Scientific Reports** 7 (2017) 976. doi: 10.1038/s41598-017-01134-3
40. Jaime Gallego, Juan Tapia, Merlyn Vargas, Alexander Santamaria, Jahir Orozco, Diana Lopez. *Synthesis of graphene-coated CNT-supported metal nanoparticles as multifunctional hybrid material.* **Carbon,** 111 (2017) 393–401.
39. Gersson Vásquez, Alba Rey, Camilo Rivera, Carlos Iregui and Jahir Orozco**. *Amperometric biosensor based on a single antibody of dual function for rapid detection of Streptococcus agalactiae*. **Biosensors and Bioelectronics** 87 (2017) 453–458.
38. Jahir Orozco**, Elisa Villa, Carmem-Lara Manes, Linda K. Medlin, Delphine Guillebault. *Electrochemical RNA biosensors for toxic algal species: enhancing selectivity and sensitivity.* **Talanta,** 161 (2016) 560–566.
37. Jahir Orozco, Luiza A. Mercante, Roberto Pol and Arben Merkoçi. *Graphene-based Janus micromotors for dynamic removal of pollutants.* **Journal of Materials Chemistry A**, 4 (2016) 3371-3378.
36. Virendra V. Singh, Kevin Kaufmann, Jahir Orozco, Jinxing Li, Michael Galarnyk, Guarav Arya, Joseph Wang. *Micromotor-based On-Off Fluorescence Detection of Sarin and Soman Simulants.* **Chem. Commun.** 51 (2015) 11190-11193.
35. Virendra V. Singh, Beatriz Jurado-Sanchez, Sirilak Sattayasamitsathit, Jahir Orozco, Kevin Kaufmann, Jinxing Li, Yuri Fedorak, Joseph Wang. *Multi-Functional Silver-exchanged Zeolite Micromotors for Catalytic Detoxification of Chemical and Biological Threats.* **Advanced functional materials**, 25 (2015) 2147-2155.
34. Jahir Orozco, Guoqing Pan, Sirilak Sattayasamitsathit, Michael Galarnyk and Joseph Wang. *Micromotors to capture and destroy anthrax simulant spores.* **Analyst** 140 (2015) 1421–1427.
33. Jinxing Li, Virendra V. Singh, Sirilak Sattayasamitsathit, Jahir Orozco, Kevin Kaufmann, Renfeng Dong, Wei Gao, Beatriz Jurado-Sanchez, Yuri Fedorak, Joseph Wang. *Water-Driven Photocatalytic Micromotors for Rapid Degradation of Biological and Chemical Warfare Agents*. **ACS nano** 8 (2014) 11118-11125.
32. Beatriz Jurado-Sánchez, Sirilak Sattayasamitsathit, Wei Gao, Luis Santos, Yuri Fedorak, Virendra V. Singh, Jahir Orozco, Michael Galarnyk and Joseph Wang. *Self-propelled activated-carbon Janus micromotors for efficient water purification*. **Small** 11 (2015) 499-506.
31. D. Vilela*, J. Orozco*, G. Cheng*, S. Sattayasamitsathit, M. Galarnyk, C. Kan, J. Wanga and A. Escarpa. *Multiplexed immunoassay based on micromotors and microscale tags*. **Lab on a chip** 14 (2014) 3505–3509.
30. Jahir Orozco, Beatriz Jurado-Sánchez, Gregory Wagner, Wei Gao, Rafael Vazquez-Duhalt, Sirilak Sattayasamitsathit, Michael Galarnyk, Allan Cortés, David Saintillan and Joseph Wang. *Bubble-Propelled Micromotors for Enhanced Transport of Passive Tracers.* **Langmuir** 3**0 (**2014) 5082−5087.
29. Jahir Orozco*, Diana Vilela*, Gabriela Valdés-Ramírez, Yuri Fedorak, Alberto Escarpa, Rafael Vazquez-Duhalt, Joseph Wang. *Efficient Biocatalytic Degradation of Pollutants by Enzyme-Releasing Self-Propelled Motors.* **Chemistry a European Journal** 20 (2014) 2866 – 2871.
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24. Jahir Orozco. Converging Nano-bio-technologies for diseases diagnosis and intervention, International Friends Talk Science. Catalan Institute for Nanoscience and Nanotechnology. April 28th 2021.
23. Jahir Orozco. Converging Nano-bio-technologies for diseases diagnosis and intervention. Instituto de Biotecnología Universidad Nacional Autónoma de México.Cuernavaca, Morelos, April 26th 2021.
22. Jahir Orozco. Nanobioengineering in Colombia: Porstpandemic challenges and oportunities. Encuentro Internacional Retos y Oportunidades para la Investigación Post Covid-19, Premios Medellín investiga, Colombia 26 de noviembre, 2020.
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