

David Gómez-Zepeda

PhD in analytical chemistry – Biological engineer

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EDUCATION

- 2013 – 2016 **PhD in analytical chemistry** – *Magna Cum Laude*
Paris Descartes University, France
- 2011 – 2013 **M.Eng. in biological engineering** – Major in design and innovation of bio-products
University of Technology of Compiègne, France
- 2008 – 2012 **B.Sc. in biochemical engineering** – *Summa Cum Laude*
Autonomous University of Aguascalientes, Mexico

RESEARCH AND PROFESSIONAL EXPERIENCE

- Apr. 2017 – present **Postdoctoral research fellow – Quantitative proteomics and metabolomics** – National Laboratory of Genomics for Biodiversity (LANGEBIO – CINVESTAV), Mexico.
Development, application, data treatment and interpretation of High-Resolution Mass-Spectrometry (HRMS) analyses (nanoLC-, UPLC- and MALDI-Synapt HDMS, Waters).
Global quantitative proteomics and protein identification
Peptide (linear and cyclic) sequence elucidation
Global and targeted quantitative metabolomics
MALDI-imaging of small molecules
Instrument maintenance and troubleshooting
Head of proteomics and peptidomics applications.
Implemented and developed proteomics workflows
Contributed with strategic advises for collaborators
Staff and student training and supervising
Contributed to grant writing
- Oct. 2013 – Dec. 2016 **PhD project – Quantitative proteomics** - INSERM UMR-S 1144 Response Variability to Psychotropics, Paris Descartes University, Faculty of Pharmacy, France
Developed, optimized and validated UPLC-MS/MS (QQQ, Xevo-TQS, Waters) methods for the specific quantification of proteins implicated in drug delivery. Application to the study of the blood-brain barrier *in vitro* and *in vivo* models and human samples.
- Jan. – Aug. 2015 **Expertise consulting project** – Avicenna Oncology, Basel, Switzerland
External scientific consultancy and strategical advisor.
- Sept. 2012 – Feb. 2013 **Intern – Quantitative proteomics** – Servier Technology, Department of Biopharmaceutical Research, France.
Developed an UPLC-MS/MS (QQQ, Xevo-TQS, Waters) method for the specific quantification of 3 transporter proteins, studying *in vitro* intestinal and hepatic models.
- Oct. 2011 – Jan. 2012 **Intern – Microbiology** – EA 4297 Microbial Activities and Bioprocesses, University of Technology of Compiègne, France.
Isolated and studied bacteria with possible impact against frosts caused by *P. syringae*.

PERSONAL SKILLS

Technical skills

MS instrumentation: nanoLC-, UPLC-, MALDI- and Ion-mobility-MS; High Resolution Q-TOF and triple quadrupole; global and targeted MS/MS; method development and validation; instrument maintenance and troubleshooting.

MS applications: Targeted and untargeted proteomics and metabolomics, cyclic-peptide *de novo* sequencing, MALDI-MS-Imaging (MSI).

General wet-lab skills, protein, peptide and metabolite extraction and fractionation, SPE, protein digestion (in solution, FASP, in gel), SDS-PAGE, cell culture, microbiology.

Computer-based skills

MS software: MassLynx package, Progenesis Q1 (proteomics and metabolomics), Skyline, MaxQuant, SearchGui, PeptideShaker, mMass, Metlin, R for proteomics.

Statistics and data analysis: Good notions in R-based programming and data analysis.

Bioinformatics: Pathway, functional and GO enrichment analysis, Pathway tools, KEGG, SMART, BLAST, PIR, Expasy, UniProt, NCBI.

Languages

Spanish

Native

English

Proficient – fluent (TOEFL IBT 104 / 120)

French

Bilingual

AWARDS, SCHOLARSHIPS AND FELLOWSHIPS

- 2018 – present Member of the Mexican National System of Researchers (**SNI**) – Candidate level
- 2017 – July 2019 Postdoctoral fellowship, Mexican National Council for Science and Technology (**CONACYT**)
- 2015 Scholarship for attending the 9th European Summer School in Advanced Proteomics – **SFEAP**, French Society for Electrophoresis and Proteomics Analysis
- 2014 Scholarship for attending the 1st EMBO course in Targeted Proteomics – **SFEAP**, French Society for Electrophoresis and Proteomics Analysis
- 2013 – 2016 Scholarship for doctoral studies – **Foundation Servier**.
- 2013 *Philéas accueil* scholarship for outstanding foreign students – University of Technology of Compiègne (**UTC**) and the Picardie region, France
- 2011-2012 **MEXFITEC**, scholarship for engineer exchange students in France – Mexican Secretariat of Public Education (SEP)
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EXTRA-PROFESSIONAL ACTIVITIES

- 2016 Elected French representative in the **Young Proteomics Investigators Club, YPIC** (European Proteomics Association, **EuPA**)
- Nov. 2013 – July 2016 Active participation in the association Les Cartésiens: the association of PhDs and PhD students from Paris Descartes University.
President (2015 - 2016), treasurer (2014 - 2015), active member (2013 - 2016)
- Sep. 2009 – Aug. 2010 Students' representative at the Council of the Department of Basic Sciences – *Autonomous University of Aguascalientes*.
- Others Participated in several **humanitarian aid** projects in Mexico; amateur photographer.
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PUBLICATIONS

- Gomez-Zepeda, D.; et al. LC-MS/MS-based quantification of efflux transporter proteins at the BBB, *J. Pharm. Biomed. Anal.* 2019.
- González-Tepale, M.R.; Reyes, L.; Mayorga-Flores, M.; Reyes-Trejo, B.; Gómez-Zepeda, D.; et al. 2018. Cyclopurpuracin, a cyclopeptide from *Annona purpurea* seeds. *Phytochem. Lett.* 23, 164–167.
- Gomez-Zepeda, D.; et al. 2017. Targeted unlabeled multiple reaction monitoring analysis of cell markers for the study of sample heterogeneity in isolated rat brain cortical microvessels. *J. Neurochem.* 38, 42–49.
- Dallas, S.; Salphati, L.; Gomez-Zepeda, D.; et al. Generation and Characterization of a Breast Cancer Resistance Protein Humanized Mouse Model. *Mol. Pharmacol.* 2016, 89 (5), 492–504.
- Chaves, C.; Gómez-Zepeda, D.; et al. Effect of Subchronic Intravenous Morphine Infusion and Naloxone-Precipitated Morphine Withdrawal on P-gp and Bcrp at the Rat Blood-Brain Barrier. *J. Pharm. Sci.* 2015.
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CONFERENCES

- Gomez-Zepeda, D. **Keynote** on Mass-Spectrometry based metabolomics and proteomics, applied to plant biotechnology. Universidad Autónoma de Aguascalientes, México.
- Gomez-Zepeda, D.; et al. Validation of a Control Protein for the absolute quantification of membrane proteins by LC-MS/MS. **Poster Presentation.** X Annual Congress of the European Proteomics Association. 2016.
- Gomez-Zepeda, D.; et al. Selective absolute quantification based on mass-spectrometry of human BCRP and mouse Bcrp for the validation of an ABCG2 humanized mouse model. **Poster Presentation.** 9th European Summer School in Advanced Proteomics. 2015.
- Gomez-Zepeda, D.; et al. Multiple reaction monitoring-based quantification of transporters and enzymes at the Blood Brain Barrier. **Poster presentation.** EMBO Practical Course in Targeted proteomics. 2014.
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