

Giuseppe Astarita, Ph.D.

Translational Biomarker & Multi-Omics Scientist

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PROFESSIONAL SUMMARY

Translational scientist with **20+ years of experience** at the intersection of **neuroscience, metabolic disorders, inflammation, and rare disease**, with deep expertise in **biomarker discovery and development** powered by **multi-omics** approaches. Recognized for translating cutting-edge analytical technologies into clinical applications, supported by **90+ peer-reviewed publications, 13,000+ citations, h-index 54, and 16 granted patents**. Platform expertise spans multi-omics mass spectrometry (lipidomics, metabolomics, proteomics) alongside immunoassay technologies (Olink, SomaLogic) and fit-for-purpose assay development. Track record of building biomarker functions from the ground up at biotech (Denali, Arkuda), CRO (Metabolon), and instrument-vendor (Waters) scale, and consulting for 20+ biotech and pharma clients.

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| 90+ PUBLICATIONS | 13,000+ CITATIONS | 54 H-INDEX | 16 PATENTS | 20+ YEARS | 20+ CLIENTS |
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AREAS OF EXPERTISE

Therapeutic areas: Neurodegeneration (Alzheimer's, Parkinson's, FTD, lysosomal storage disorders), metabolic disorders, inflammation, rare disease, nutrition science

Platforms: Lipidomics, metabolomics, proteomics · LC-MS/MS, ion mobility-MS · Olink, SomaLogic immunoassays · Targeted & untargeted multi-omics

Translational expertise: Biomarker strategy & clinical-trial endpoints · MOA & pharmacodynamic readouts · Patient stratification · Assay development & validation · CRO management · Regulatory-ready evidence packages

Scientific specialties: Endocannabinoid signaling · Lipid mediators (oxylipins, eicosanoids, SPMs) · Omega-3/DHA biology · Sphingolipid & ceramide metabolism · Lysosomal biology (progranulin, GBA, LRRK2)

PROFESSIONAL EXPERIENCE

Principal Consultant — Biomarker & Omics Strategy

08/2020 – Present

MyMetabolome Consulting · Belmont, MA

- Advised **20+ biotech and pharmaceutical clients** on translational biomarker strategy, IND-enabling programs, and multi-omics integration across neuroscience, metabolic, and rare disease.
- Built multi-omics laboratory capabilities and teams for clients from the ground up — platform selection, instrumentation roadmap, assay development, and SOPs.
- End-to-end scientific leadership across experimental design, data analysis, interpretation, and strategic planning for multi-omics biomarker programs.
- Identified and characterized biomarkers contributing to patent applications, peer-reviewed publications, and the advancement of proof-of-concept and clinical programs.

Adjunct Assistant Professor — Biochemistry & Molecular Biology

02/2012 – Present

Georgetown University · Washington, DC

- Pioneered lipidomics capabilities at the Lombardi Cancer Center; recipient of the Alzheimer's Association New Investigator Research Grant (NIRG-11-203674).
- Co-authored 40+ peer-reviewed manuscripts and book chapters; teach the graduate-level course *Clinical Metabolomics* (BCHB-596) and serve on Ph.D. thesis committees.

Senior Director, Biomarker Discovery

04/2022 – 10/2023

Arkuda Therapeutics · Watertown, MA

- Led end-to-end biomarker strategy for clinical-stage programs in lysosomal dysfunction, neuroinflammation, and neuronal health — defining MOA, PD, and patient stratification endpoints using multi-omics and CSF/plasma panels.
- Built and directed integrated multi-omics pipelines (LC-MS/MS, Olink, SomaLogic) for translational and clinical readouts.
- PI on a \$350K MJFF Lysosomal Biomarkers proposal (2023) for Parkinson's patient stratification, integrating in-house NHP datasets with PPMI, UK Biobank, EPIC4ND, and Knight-ADRC.
- Operated as biomarker strategy lead within a fast-paced matrixed startup; managed CRO partnerships and assay validation programs.

Senior Scientific Manager

12/2020 – 03/2022

Metabolon · San Francisco, CA

- Reimagined omics-based biomarker strategy: pioneered **20+ biomarker panels** across neurodegeneration, inflammation, microbiome, aging, oncology, and metabolic disorders.
- Functioned as scientific and technical liaison for 20+ pharma, biotech, and academic clients; led publication and webinar strategy.

Principal Scientist, Head of Omics Mass Spectrometry

08/2016 – 07/2020

Denali Therapeutics · South San Francisco, CA

- Founded and scaled the omics MS function from the ground up into a centralized multi-omics platform supporting **20+ programs** across discovery and clinical pipeline.
- Led biomarker strategy advancing **6+ programs to Phase 1/2**, defining PD endpoints and patient stratification adopted in clinical protocols.
- Contributed to a CSF heparan sulfate surrogate endpoint incorporated into a regulatory approval — concrete biomarker-to-regulatory translation.
- Co-authored 8+ high-impact publications and co-invented 6 patents; led a team of 6+ scientists.

Principal Scientist & Global Business Development Manager, Omics

09/2011 – 07/2016

Waters Corporation · Milford, MA

- Managed worldwide programs for metabolomics and lipidomics — application development, technology deployment, and 100+ scientific collaborations with KOLs across academia, pharma, and industry.
- Pioneered ion mobility-MS, novel lipid separation columns, and software tools — contributing to **12+ patents and 20+ publications**.
- Presented at 100+ scientific conferences; delivered 20+ invited international oral communications.

Team Leader, Drug Discovery & Development

2008 – 09/2011

Italian Institute of Technology (IIT) · Genoa, Italy

- Led lipid biomarker programs for neurodegenerative, metabolic, and inflammatory disorders; established mass spectrometry facility in a newly launched institute.

Project Scientist & Director, Analytical Discovery Facility

2005 – 08/2011

University of California, Irvine · Department of Pharmacology

- Founded and directed the Agilent/UC Irvine Analytical Discovery Facility — an LC/MS core unit for lipidomics and metabolomics across neuroscience, endocannabinoid biology, and metabolic disease.
- Co-authored 40+ peer-reviewed publications; mentored 10+ scientists, postdocs, and Ph.D. students.

EDUCATION

Ph.D. — Biochemistry and Molecular Biology

University of Rome "Tor Vergata" · Rome, Italy

"Multi-Organ Systems Lipidomics: a Liver Peroxisomal Dysfunction in Alzheimer's disease"

M.Sc. II — Analytical Chemistry: Quality Control & Assurance

University of Rome "La Sapienza" · Rome, Italy

M.Sc. I — Biochemistry (Final grade 110/110)

University of Naples "Federico II" · Naples, Italy

SELECTED PUBLICATIONS

Complete list available on [PubMed](#), [Google Scholar](#), and [lipidomic.com](#).

Root J, Mendsaikhan A, ... **Astarita G**, Blain JF, Kukar T. Granulins rescue inflammation, lysosome dysfunction, lipofuscin, and neuropathology in a mouse model of progranulin deficiency. *Cell Reports*. 2024;43(12):114985.

Astarita G, Kelly RS, Lasky-Su J. Metabolomics and lipidomics strategies in modern drug discovery and development. *Drug Discovery Today*. 2023;28(10):103751.

Jennings D, Huntwork-Rodriguez S, ... **Astarita G**, et al. Preclinical and clinical evaluation of the LRRK2 inhibitor DNL201 for Parkinson's disease. *Sci Transl Med*. 2022;14(648):eabj2658.

Logan T, Simon MJ, ... **Astarita G**, et al. Rescue of a lysosomal storage disorder caused by Grn loss of function with a brain-penetrant progranulin biologic. *Cell*. 2021;184(18):4651-4668.

Crotty GF, ... **Astarita G**, Schwarzschild MA. Association of caffeine and related analytes with resistance to Parkinson's disease among LRRK2 mutation carriers. *Neurology*. 2020;95(24):e3428-e3437.

Andreone BJ, ... **Astarita G**, Di Paolo G, et al. Alzheimer's-associated PLC γ 2 is a signaling node required for both TREM2 function and the inflammatory response in human microglia. *Nature Neuroscience*. 2020;23(8):927-38.

Ullman JC, ... **Astarita G**, et al. Brain delivery and activity of a lysosomal enzyme using a blood-brain barrier transport vehicle in mice. *Sci Transl Med*. 2020;12(545):eaay1163.

Nugent AA, ... **Astarita G**, Lewcock JW, Monroe KM, Di Paolo G. TREM2 regulates microglial cholesterol metabolism upon chronic phagocytic challenge. *Neuron*. 2020;105(5):837-54.

Paglia G, Smith AJ, **Astarita G**. Ion mobility mass spectrometry in the omics era: challenges and opportunities for metabolomics and lipidomics. *Mass Spectrom Rev*. 2021.

Paglia G, **Astarita G**. Metabolomics and lipidomics using traveling-wave ion mobility mass spectrometry. *Nature Protocols*. 2017;12(4):797-813.

Astarita G, Kendall AC, Dennis EA, Nicolaou A. Targeted lipidomic strategies for oxygenated metabolites of polyunsaturated fatty acids. *BBA Lipids*. 2015;1851(4):456-68.

Paglia G, ... **Astarita G**, Ekroos K, Astarita G. Ion mobility-derived collision cross section as an additional measure for lipid fingerprinting. *Anal Chem*. 2015.

SELECTED PATENTS (16 GRANTED)

Astarita G, Di Paolo G, et al. Methods for treating dysregulated lipid metabolism. **WO2020112889** (2021).

Astarita G, Devos SL, Di Paolo G, Logan TP, Wang J, et al. Methods for treating and monitoring progranulin-associated disorders. **WO2020081575** (2021).

Astarita G, Dennis MS, Getz JA, Henry A, Kariolis M, et al. Fusion proteins comprising enzyme replacement therapy enzymes. **WO2019070577** (2021).

Arguello A, **Astarita G**, Bhalla A, et al. Lysosomal storage disorder biomarkers and methods of use thereof. **WO2020123511** (2020).

Astarita G. Monitoring radiation exposure and radiosensitivity using ambient ionization mass spectrometry. **WO2018009700** (2018).

Astarita G, Geromanos S. Mass spectrometry with quadrupole and ion mobility separation capabilities. **WO2016196181** (2016).

Piomelli D, **Astarita G**, et al. Methods of treatment for methamphetamine toxicity targeting ceramide metabolic pathways. **WO2013149250** (2013).

This is a condensed CV. The full extended CV — including all 90+ publications, 16 patents, talks, posters, grants, and editorial activity — is available at [lipidomic.com](#). For consulting inquiries: [mymetabolome.com](#).