

Silvia Lope Piedrafita

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Categoria: Lector

Breu resum del CV: Silvia Lope-Piedrafita is currently a Lecturer in the Biophysics Unit of the Department of Biochemistry and Molecular Biology at the Universitat Autònoma de Barcelona (UAB). She obtained her degree in Physics from the University of Zaragoza in 1999 and began her research career in Nuclear Magnetic Resonance (NMR) during an Erasmus placement at the University of Rennes, France. In 2000, she joined the University of Arizona (USA), where she specialized in solid-state deuterium NMR under the supervision of Prof. Michael Brown, completing a Master's thesis on lipid membrane dynamics. From 2003, her focus shifted to Magnetic Resonance Imaging (MRI) in Prof. Theodore Trouard's lab (Dept. of Radiology, UofA), where she developed diffusion-weighted MRI methods for tumor and neurodegenerative disease models. This work formed the basis of her PhD thesis, *High-Resolution Diffusion Tensor Imaging in Small Animals with Radial Acquisition* (UAB, 2007).

In 2006, she returned to Spain to lead the MRI area at the UAB Nuclear Magnetic Resonance Facility (SeRMN), where she oversaw installation of Catalonia's first 7T MRI scanner dedicated to preclinical studies. As a research specialist from 2006 to 2024), she advanced high-field MRI/MRS techniques for biomedical applications, contributing to studies in cancer, neurodegeneration, cardiovascular disease, obesity, plant imaging, and contrast agent development. In 2010, she undertook a research stay at Harvard Medical School, where she trained in hyperpolarized 13C MR techniques, later implemented at UAB.

In September 2024, she was appointed Profesora Lectora at UAB. Her current research focuses on integrating advanced MRI/MRS with innovative preclinical models. In October 2025, she secured a UAB pre-competitive grant for emergent leadership to develop CAM-MRI methodology for non-invasive evaluation of cancer therapeutics in immunocompetent xenografts, and in September 2026 a project financed by the Spanish State Research Agency. She has been a member of CIBER-BBN since 2007 and currently serves as scientific coordinator of Unit 25 of the ICTS NANBIOSIS.

Overall, she has participated in 17 competitive projects (10 national, 3 European, 4 U.S.), including PID2025-169894OB-I00 (2026–2029), which she leads as principal investigator, and H2020-MSCA-ITN-2018-813120 (2019–2023), within which she supervised an Early-Stage Researcher's PhD thesis on high-resolution MRSI for glioma therapy monitoring, defended in July 2023. She has co-authored 43 scientific articles, 35 of them published in Q1 journals, and four indexed book chapters. Her publications have received 1,246 citations, with an h-index of 21 according to Web of Science (October 2026).

Her teaching experience includes undergraduate and postgraduate courses in Biomolecular Spectroscopy, Nanotechnology for Diagnosis, and Biophysics. She has also been an invited lecturer in 15 specialized courses organized by institutions including ESMRMB, Infrafrontier, CSIC, RSEQ, and BIONAND. In 2008, she created the Workshop *on Magnetic Resonance*

Spectroscopy and Imaging Applied to Laboratory Animals, which she continues to lead and which has now reached 16 editions. This highly specialized, small-group programme combines theoretical instruction with hands-on training in advanced MRI and MRS techniques. More than 65 researchers from universities, research centres, and companies such as Esteve, GSK, and Bruker have completed the programme, several of whom now lead high-field MRI facilities across Spain. She has supervised one completed and one ongoing PhD thesis, as well as one Master's thesis, and has served on eight PhD examination panels and 46 PhD monitoring committees.

Nom grup de recerca: Method Development in Preclinical Magnetic Resonance

Publicacions: (indicar codis Research ID i ORCID per fer un link a les publicacions)
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1. Díaz-Pérez A, Penas C, Jiménez-Altayó F, Lope-Piedrafita S (2026). A Voxel-Wise T2 Distribution Framework for Lesion Severity Stratification and Treatment-Response Assessment in Stroke: Insights Into Suberoylanilide Hydroxamic Acid-Induced Neuroprotection. Magnetic Resonance in Medicine, 0:1–15. DOI:10.1002/mrm.70552
2. Javed Z, Martinez GV, Mulero-Acevedo M, Candiota AP, Arus C, Cabañas ME, Lope-Piedrafita S (2026). Improved MRSI in a Murine Glioma Model Using semiLASER: Refining the Metabolomics Data Obtained from Murine Models. Appl. Sci. 16(8), 3788. DOI:10.3390/app16083788
3. Wu Y, Caro C, Matamoros E, Urbano-Gámez JD, Lope-Piedrafita S, Vida Y, García-Martín ML,Vidal-Gancedo J, Lloveras V (2026). Designing Water-Soluble Macromolecules for Biomedical Use: PEG Chains versus Amino Acids─A Case Study in MRI Contrast Agents. ACS Polym. Au 2026, 6, 3, 806-820. DOI: 10.1021/acspolymersau.5c00162
4. Lope-Piedrafita S, Serra-Mir G, Melón P, Bonaterra A, Hernández-Guillamon M, Villegas S (2025). cFv-h3D6 Prevents Bapineuzumab-Induced Hemorrhagic Events in the APP23 Mouse Model of Alzheimer's Disease. Biomolecules 15, 1602. DOI: 10.3390/biom15111602
5. Brao A, Sánchez Á, Rodríguez I, Rey JD, Lope-Piedrafita S, Prat E, Nunes V, Chillón M, Estévez R, Bosch A. (2025). Gene therapy rescues brain edema and motor function in a mouse model of megalencephalic leukoencephalopathy with subcortical cysts. Mol Ther. 33(4):1434-1448. DOI: 10.1016/j.ymthe.2025.02.046
6. Wu Y, Lloveras V, Lope-Piedrafita S, Mulero-Acevedo M, Candiota AP, Vidal-Gancedo J. (2025). Synthesis and Relaxivity study of amino acid-branched radical dendrimers as MRI contrast agents for potential brain tumor imaging. Acta Biomater 192:461-472. doi: 10.1016/j.actbio.2024.12.006