

Dr. Nabil Djouder

Highly accomplished **biochemist** and **mouse geneticist** at a prominent academic institution | pioneering research on the **URI prefoldin complex** and elucidating its function | made seminal discoveries on the **mechanisms** underlying **liver and intestinal diseases**, as well as **obesity** and associated **metabolic disorders in response to nutrient overload** | published extensively in the top quartile of impact factors, with **an average impact factor of 31 for my corresponding and last author publications** | regularly invited to speak at **national and international conferences and institutions** | leads a team of **wet scientists** | supported by **prestigious funding** from national and international agencies | known as a passionate **leader and mentor in nutrition and cancer** | skilled in both scientific **management** and **communication** | daily gym exercise | fantastic cook

BIOGRAPHY

Dr. Nabil Djouder, a French scientist, obtained his PhD in Molecular Pharmacology and Pharmacochimistry from the University of Strasbourg (France) and the University of Freiburg (Germany), where he investigated mast cell activation mechanisms under the guidance of Dr. Klaus Aktories.

In 2001, he pursued postdoctoral research at the Novartis Friedrich Miescher Institute in Basel, Switzerland, with Dr. Wilhem Krek. His work focused on elucidating the mechanisms of growth control in cancer, particularly the regulation of the mTORC1 pathway by growth factors and nutrients, as well as energy homeostasis and their link to metabolic disorders.

In 2003, Djouder continued his collaboration with W. Krek at the Institute of Cell Biology at ETH Zurich, contributing to the creation of the Competence Centre for Systems Physiology and Metabolic Diseases.

In early 2010, he joined the Cancer Cell Biology Programme as a Junior Group Leader, established by Dr. Erwin Wagner at the CNIO in Madrid. There, he focused on studying the role of growth factors and nutrients in cancer and associated metabolic disorders.

Djouder's pioneering work investigates the function of the URI prefoldin-like complex, a heterohexameric chaperone complex with implications in cellular homeostasis and disease development. By creating genetically engineered mouse models for URI gain and loss-of-function, he has highlighted the importance of URI as an oncogene and how its modulation by environmental stressors can link environmental factors to cancer development. His research indicates that URI may be crucial for early embryonic development and acts as a component of a quality control system that mitigates proteotoxicity and suppresses disease development.

Furthermore, utilizing a wide array of genetically engineered mouse models and advanced technologies, Dr. Djouder has unraveled mechanisms underlying diseases of the digestive system triggered by unhealthy diets, nutrient imbalances, and sedentary lifestyles, which often

lead to severe inflammatory conditions. Specifically, he has elucidated how nutrients possess inflammatory properties and their intricate links to various metabolic disorders.

His research also established that metabolic dysfunctions contribute to genomic instability, thereby triggering inflammatory responses, and suggests that cancer hallmarks are intrinsic to the tumorigenesis timeline.

His contributions have been groundbreaking as he was the first to highlight NAD⁺ depletion as a critical factor in DNA damage-induced inflammation and cancer. He has pioneered the use of nicotinamide riboside as an NAD⁺ supplement for both the prevention and treatment of cancer. Moreover, his research has linked inflammation, particularly involving IL-17A, to obesity and autoimmune disorders, notably connecting these conditions to the development of liver disease-induced hepatocellular carcinoma. These findings have garnered significant interest from pharmaceutical companies such as Lilly and Novartis, leading to exploration in clinical trials aimed at investigating IL-17A blockers as potential therapies for obesity-related disorders.

Dr. Djouder has an impressive impactful publication record in highly recognized international journals. He has also received prestigious awards, including the Ramon y Cajal Award, and secured national and international funding. Despite CNIO's policy against granting tenure to Junior Group Leaders, his exceptional achievements led to his promotion to Senior Group Leader in January 2018.

Overall, his research contributions in understanding the function of URI prefoldin complex, and in the areas of nutrients, inflammation, and cancer have been widely recognized and rewarded, establishing him as an expert in this field.

PERSONAL INFORMATION

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EDUCATION

1997 - 2001	PhD in Molecular Pharmacology and Pharmacochimistry, University Louis Pasteur (ULP), Strasbourg, France (with honours).
1996 - 1997	DEA in Molecular Pharmacology and Biochemistry, ULP, Strasbourg, France.
1991 - 1996	Honours BSc and Master in Biochemistry and Cell Biology, ULP, Strasbourg, France.

CURRENT POSITION

2019/01 - to date **Senior group leader** (equivalent to full professor), **Centro Nacional de Investigaciones Oncológicas (CNIO)**, Madrid, Spain, in the Molecular Oncology Programme directed by Prof. Dr. Oskar Fernandez-Capetillo.

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2009 - to date I have trained/am training **technicians** (3 previous/1 current), **undergraduate students** (6 previous), **master students** (10 previous/1current), **graduate students** (7 previous/9 current), **medical residents** (3 previous) and **postdoctoral fellows** (7 previous/ 3 current). 75% of supervised fellows are/were women.

8 PhD students have already obtained their doctoral degree at Madrid University with the best grade exceptional cum laude, received several awards (best publication awards, and best student awards) and embarked themselves in postdoctoral studies in top-notch labs as follows:

2019/10 - 2024/06 **Irene Herranz Montoya:** *"Mechanisms of colorectal cancer initiation"*. Universidad Autónoma de Madrid. She is seeking a PostDoc.

2017/03 - 2023/06 **Sergio de la Rosa:** *"Role of URI during embryonic development"*. Universidad Autónoma de Madrid. He will join the lab of **Magdalena Zernicka-Goetz** for a PostDoc.

2017/01 - 2022/06 **Tatiana Grazioso:** *"Unconventional therapies for cancer treatment"* - PostDoc with **Dr. Jesus-Garcia Donas**, HM Hospital, Madrid, Spain.

2015/02 - 2020/12 **Dr. Amanda Garrido:** *"Role and functions of MCRS1 in liver disease"* - PostDoc with **Dr. Rafael de Cabo**, NIH, Baltimore, USA, start on Oct. 2021.

2015/02 - 2020/09 **Dr. Ana Teijeiro:** *"Il-17A in obesity, metabolic syndrome and HCC"* - PostDoc with **Dr. Yasmine Belkaid**, NIH, Bethesda, USA, start on Nov. 2021.

2013/09 - 2019/02 **Dr. Almudena Chaves:** *"Role of URI in Intestinal Homeostasis and Radiation Enteropathy"* - PostDoc with **Dr. Scott Lowe**, MMSK centre, NY, USA.

2011/10 - 2017/05 **Dr. Marta Brandt:** *"Role of MCRS1 in Intestinal Homeostasis and Colorectal Cancer"* - PostDoc with **Dr. Ramxix Xavier**, Broad Institute, Boston.

2009/09 - 2015/08 **Dr. Krishna Seshu Tummala:** *"Molecular and Cellular Mechanisms of Hepatocarcinogenesis"* - PostDoc with **Dr. Nabeel Bardeesy**, HMS, Boston.

8 former postdocs obtained leading or professorship jobs in academia and pharma companies, as follows:

01/2021 - 12/2022 **Dr. Albert Harguindey** is a process engineer in ThermoFisher, Netherlands

05/2019 - 12/2021 **Dr. Eunjeong Kim** is assistant professor in South Korea

02/2017 - 10/2018 **Dr. Sebastian Thompson** is assistant professor IMDEA, Madrid

07 2011 - 04/2019 **Dr. Hugo Bernard** is a Director Medical Adviser, Spain

06/2010 - 12/2014 **Dr. Mohamad-Ali Fawal** is Researcher at SYNAXYS, France

04/2010 - 09/2014 **Dr. Stefan Buren** is assistant professor, CBPG, Madrid

09/2011 - 12/2014 **Dr. Ana Gomes** is senior scientist, CRICK Institute, London, UK
06/2010 - 01/2013 **Dr. Mahmut Yilmaz** is scientific communication director, Roche, Basel

Best last and corresponding author publications

2024. Gallo R, Teijeiro A, Angulo-Aguado M and **Djouder N** (2024) IL-17A produced by POMC neurons regulates diet-induced obesity. [*iScience*](#); 2024, in press

2024. De la Rosa S, Rigual MdM, Sagrario O and **Djouder N** (2024) Endogenous retroviruses shape pluripotency specification in mouse embryos. [*Science Advances*](#); 2024 Jan 26;10(4):eadk9394.

2022. Chaves-Pérez A, Santos-de-Frutos K, De la Rosa S, Herranz-Montoya I, Perna C and **Djouder N** (2022) Transit-amplifying cells control R-spondins in the mouse crypt to modulate intestinal stem cell proliferation. [*Journal of Experimental Medicine*](#); 2022, 219: e20212405.

2021. Garrido A, Kim E, Teijeiro A, Sánchez Sánchez P, Gallo R, Nair A, Matamala M, Perna C, Vicent GP, Muñoz J, Campos-Olivas R, Melms JC, Izar B, Schwabe RF and **Djouder N** (2021) Histone acetylation of bile acid transporter genes plays a critical role in liver cirrhosis. [*Journal of Hepatology*](#); 2021, S0168: 02294-7.

2021. Teijeiro A, Garrido A, Ferre A, Perna C and **Djouder N** (2021) Inhibition of the IL-17A axis in adipocytes suppresses diet-induced obesity and metabolic disorders in mice. [*Nature Metabolism*](#); 2021 Apr;3(4):496-512.

2020. Bernard H, Chaves-Pérez A, Teijeiro A, Perna C, Satish B, Novials A, Wang JP and **Djouder N** (2020) Coxsackievirus B Type 4 Infection in beta Cells Downregulates the Chaperone Prefoldin URI to Induce a MODY4-like Diabetes via *Pdx1* Silencing. [*Cell Reports Medicine*](#); 2020 Oct 20;1(7):100125.

2019. Chaves-Pérez A, Yilmaz M, Perna C, De la Rosa S and **Djouder N** (2019) URI is required to maintain intestinal architecture during ionizing radiation. [*Science*](#); 2019 May 31;364(6443).

2018. Brandt M, Grazioso TP, Fawal MA, Tummala KS, Torres-Ruiz R, Rodriguez-Perales S, Perna C and **Djouder N** (2018) mTORC1 Inactivation Promotes Colitis-Induced Colorectal Cancer but Protects from APC loss-Dependent Tumorigenesis. [*Cell Metabolism*](#); 2018 Jan 9;27(1):118-135.

2017. Tummala KS, Brandt M, Teijeiro A, Graña O, Schwabe RF, Perna C and **Djouder N** (2017) Hepatocellular Carcinomas Originate Predominantly from Hepatocytes and Benign Lesions from Hepatic Progenitor Cells. [*Cell Reports*](#); Apr 18;19(3):584-600.

2016. Burén S, Gomes AL, Fawal MA, Teijeiro A, Yilmaz M, Tummala KS, Perez M, Rodriguez-Justo M, R, Megias D and **Djouder N** (2016) Regulation of OGT by URI in

Response to Glucose Confers c-MYC-Dependent Survival Mechanisms. [*Cancer Cell*](#); Aug 8;30(2):290-307.

2016. Gomes AL, Teijeiro A, Burén S, Tummala KS, Yilmaz M, Waisman A, Theurillat JP, Perna C and **Djouder N** (2016) Metabolic Inflammation-Associated IL17A Causes Non-Alcoholic Steatohepatitis and Hepatocellular Carcinoma Development. [*Cancer Cell*](#); Jul 11; 30(1):161-175.

2015. Fawal MA, Brandt M, and **Djouder N** (2015) MCRS1 Binds and Couples Rheb to Amino Acid-Dependent mTORC1 Activation. [*Developmental Cell*](#); 2015 Apr 6;33(1):67-81.

2014. Tummala KS, Gomes AL, Yilmaz M, Graña O, Bakiri L, Ruppen I, Ximénez Embún P, Sheshappanavar V, Rodriguez-Justo M, Pisano D, Wagner EF and **Djouder N** (2014) Inhibition of *De Novo* NAD⁺ Synthesis by Oncogenic URI Causes Liver Tumorigenesis through DNA Damage. [*Cancer Cell*](#); **2014** Dec 8;26(6):826.

Best last and corresponding author peer-reviewed reviews and methods from the last 5 years

2023. Martinez-Garay C and **Djouder N** (2023) Dietary interventions and precision nutrition in cancer therapy. [*Trends in Molecular Medicine*](#); 2023 Jul;29(7):489-511.

2023. Grazioso TP and **Djouder N** (2023) The forgotten art of cold therapeutic properties in cancer: a comprehensive historical guide. [*iScience*](#); 2023. May 29;26(7):107010.

2023. Grazioso TP and **Djouder N** (2023) A mechanistic view of the use of cold temperature in the treatment of cancer. [*iScience*](#); 2023. Mar 30;26(4):106511.

2022. Rigual MdM, Sánchez Sánchez P and **Djouder N** (2022) Is liver regeneration key in hepatocellular carcinoma development? [*Trends in Cancer*](#); 2022 Nov 5:S2405-8033(22)00228-X.

2021. Herranz-Montoya I, Park S, **Djouder N** (2021) A comprehensive analysis of prefoldins and their implication in cancer. [*iScience*](#); 2021 Oct 15;24(11):103273.

2021. Sánchez Sánchez P, Rigual MDM, **Djouder N** (2021) Inflammatory and Non-Inflammatory Mechanisms Controlling Cirrhosis Development. [*Cancers*](#) (Basel) ; 2021 Oct 9;13(20):5045.

2021. Torres-Ruiz R, Grazioso T, Brandt M, Martinez-Lage M, Rodriguez-Perales S and **Djouder N** (2021) Detection of Chromosome Instability by Interphase FISH in Mouse and Human Tissues. [*STAR Protocols*](#); Jun 28;2(3):100631.

2021. Santos-de-Frutos K and **Djouder N** (2021) When dormancy fuels tumour relapse. [*Communications Biology*](#); Jun 16;4(1):747.

2020. Garrido A and **Djouder N** (2020) Cirrhosis, a questioned risk factor for HCC. [*Trends in Cancer*](#); Sep 8:S2405-8033(20): 30237-5.

2019. Grazioso TP, Brandt M and **Djouder N** (2019) Diet, Microbiota and Colorectal Cancer. [iScience](#); 2019 Oct 10;21:168-187.

2017. Garrido A and **Djouder N** (2017) NAD⁺ deficits in age-related diseases and cancer. [Trends in Cancer](#); 2017 Aug;3(8):593-610.

Book chapters

2018. **Djouder N** (2018) Prefoldins: the new chaperones. **Djouder, N** (ed.); [Advances in Experimental Medicine and Biology. Springer Nature](#); vol. 1106. ISBN 978-3-030-00736-2.

2018. Chaves-Pérez A, Thompson S, **Djouder N** (2018). Roles and Functions of the Unconventional Prefoldin URI, vol. 1106:95-108; [Advances in Experimental Medicine and Biology. Springer Nature](#).

Best publications co-authored in collaboration from the last 5 years

2024. Blázquez-García I, Guerrero L, Cacho-Navas C, **Djouder N**, Millan J, Paradela A, Carmona-Rodríguez L, Corrales FJ (2024). Molecular Insights of Cholestasis in MDR2 Knockout Murine Liver Organoids. [J Proteome Res](#). 2024 Apr 5;23(4):1433-1442.

2021. Pfister D,..., **Djouder N**,..., Heikenwälder M (2021) NASH limits anti-tumor surveillance in immunotherapy-treated HCC. [Nature](#); 2021. Apr;592(7854):450-456.

2020. McGinley AM, ..., **Djouder N**, Mills KHG (2020) Interleukin-17A Serves a Priming Role in Autoimmunity by Recruiting IL-1 β -Producing Myeloid Cells that Promote Pathogenic T Cells. [Immunity](#); 2020 Jan 27. pii: S1074-7613(20)30029-7.

2019. Malehmir M, ..., **Djouder N**,..., Heikenwalder M (2019) Platelet GPIIb α is a mediator and potential interventional target for NASH and subsequent liver cancer. [Nature Medicine](#); 2019 Apr;25(4):641-655.

2018. Youssif C, ..., **Djouder N**, Nebreda AR (2018) Myeloid p38gamma signaling promotes intestinal IGF-1 production and inflammation-associated tumorigenesis. [EMBO Mol Med](#); 2018 Jul;10(7). pii: e8403.

2011. Theurillat JP, Metzler SC, Henzi N, **Djouder N**, Helbling M, Zimmermann AK, Jacob F, Soltermann A, Caduff R, Heinzelmann-Schwarz V, Moch H, Krek W (2011) URI Is an Oncogene Amplified in Ovarian Cancer Cells and Required for Their Survival. [Cancer Cell](#); 2011; 19(3):317-32.