



UNIVERSITÀ DEGLI STUDI DI MILANO

**AL MAGNIFICO RETTORE
DELL'UNIVERSITA' DEGLI STUDI DI MILANO
COD. ID: 4278**

Il sottoscritto chiede di essere ammesso a partecipare alla selezione pubblica, per titoli ed esami, per il conferimento di un assegno di ricerca presso il Dipartimento di Bioscienze, responsabile scientifico il **Prof. Martino Bolognesi**

Antonio Chaves Sanjuán

CURRICULUM VITAE

INFORMAZIONI PERSONALI

Cognome	Chaves Sanjuán
Nome	Antonio
Data Di Nascita	18/10/1986

OCCUPAZIONE ATTUALE

Incarico	Struttura
Assegnista di ricerca	Università degli studi di Milano

ISTRUZIONE E FORMAZIONE

Titolo	Corso di studi	Università	anno conseguimento titolo
Laurea Magistrale o equivalente	Chimica	Universidad de Sevilla (Spain)	2009
Dottorato Di Ricerca	Crystallography and Crystallization	Universidad Internacional Menéndez Pelayo (Spain)	2014
Master	Crystallography and Crystallization	Universidad Internacional Menéndez Pelayo (Spain)	2010

LINGUE STRANIERE CONOSCIUTE

lingue	livello di conoscenza
Inglese	C1
Spagnolo	C2



PREMI, RICONOSCIMENTI E BORSE DI STUDIO

anno	Descrizione premio
2018	Assegno di ricerca Post doc-di tipo B Grant (University Post-doc Fellowship). 2018. Università degli Studi di Milano, Milano (Italy)
2017	José Tormo Award (National Research Award , Structural Biology, Under-33, Bruker)
2015	Assegno di ricerca Post doc-di tipo A Grant (University Post-doc Fellowship). 2015. Università degli Studi di Milano, Milano (Italy)
2015	Xavier Solans Award (National Research Award, Structural Biology, Under-36, Bruker)
2009	FPI Grant (National PhD Fellowship). 2009. Instituto de Química-Física 'Rocasolano' (CSIC), Madrid (Spain)

ATTIVITÀ DI FORMAZIONE O DI RICERCA

Postdoctoral Research Fellow (01/09/2018-Present)

I continue my research on transcription factors working on NFIX, that regulates skeletal muscle cell regeneration. In muscular dystrophies, it has been shown that silencing NFIX makes the muscle regeneration slower. That, in turn, preserves the muscle morphology and functionality, demonstrating its pharmacological potential. I approached NFIX silencing from a structural viewpoint. In addition, I have started a collaboration for the characterization of HCN4, a neuronal potassium channel, using new structural techniques as cryo-electron microscopy.

Postdoctoral Research Fellow (01/09/2015-31/08/2018)

I studied the NF-Y transcription factor, both in humans and in plants. In humans, NF-Y constitutes a target for oncotherapies. I combined structural biology with the fragment-based drug discovery approach to identify NF-Y inhibitors that could lead to heat compounds able to open new avenues for oncotherapies. In plants, NF-Y genes expanded in a large protein family. They regulate the transcription of genes involved in the flowering time and seed oil content, both processes playing a leading role for the agronomic industry. I have characterized at molecular level some NF-Y/DNA complexes through protein crystallography and DNA-protein binding assays. As side-project, I collaborated on the structural biology of KAT1 potassium channel regulation through 14-3-3 proteins in plants.

Postdoctoral Research Assistant (01/09/2014-31/08/2015)

I worked on the structural biology of NCS1, a calcium sensor that targets the guanine exchange factor Ric8a. These proteins coregulate synapse number and probability of neurotransmitter release. The missregulation of these processes lead to a number of diseases, such as fragile X syndrome, the most common heritable autism disorder. In joint collaboration with a multidisciplinary team, I participated in the project development from the basic protein characterization to the identification of a lead compound tested on a fragile X syndrome Drosophila model.

PhD Student (01/09/2009-31/08/2014)

I focused my research on the CBL-CIPK abiotic stress signaling pathway in plants, which controls major threats to crop productivity at a worldwide scale, as drought and salinity. In this pathway there is a wide range of protein families involved in, such as: kinases, transporters, calcium sensors and phosphatases. I based my research on the structural characterization of the regulatory processes of these proteins at molecular level. I mainly employed protein crystallography, recombinant protein production and biophysical characterization techniques. My research provided an explanation on how the CIPKs are differentially activated to coordinate the adequate cell response to a particular stress.

**CORSI:**

International School on Biological Crystallization 3rd Edition (ISBC 2011). 22-26th May 2011. IACT (CSIC-UGR), Granada (Spain).

Macromolecular Crystallography School (MCS 2010). 26-30th April 2010. IQFR (CSIC), Madrid (Spain).

CONGRESSI, CONVEGNI E SEMINARI

Data	Titolo	Sede
2017	Structural insights of NF-Y in plants	XXV Workshop. Advances in Molecular Biology by young researchers aboard. Madrid (Spain)
2017	Optimizing protein/DNA complex crystallization: the case of NF-Y transcription factor	Italian Crystal Growth 2017. Milan (Italy)
2017	Phenothiazines regulate synaptic function by interfering the NCS-1/Ric8a complex: An approach for Fragile X Syndrome	FEBS3+ Barcelona 2017. Barcelona (Spain).
2015	The structure of the CBL-CIPK pathway: the regulation of Arabidopsis thaliana ion homeostasis Structural basis of the regulatory mechanism of the plant CIPK family of protein kinases controlling ion homeostasis and abiotic stress	XXXV Bienal RSEQ Meeting. A Coruña (Spain).
2015	Frequenin/NCS-1 as a pharmacological target for synapse regulation in X-linked mental retardation and autism	II Simposio de Jóvenes Investigadores de IQFR. Madrid (Spain).
2013	The structure of the CBL-CIPK pathway: the regulation of Arabidopsis thaliana ion homeostasis	Meeting of the Italian, Spanish and Swiss Crystallographic Associations. MISSCA 2013. Como (Italy).
2012	Regulation of an Arabidopsis thaliana potassium channel	XXII Simposio del grupo especializado de cristalografía y crecimiento cristalino Sevilla (Spain)
2009	Facile splitting of hydrogen and ammonia by nucleophilic activation at a single carbon center	IV Congreso de Estudiantes de Química. Sevilla (Spain)

Articoli su riviste

C Roca, L Martinez-González, M Daniel-Mozo, J Sastre, L Infantes, A Mansilla, **A Chaves-Sanjuan**, JM González-Rubio, C Gil, FJ Cañada, A Martinez, MJ Sanchez-Barrena, NE Campillo (2018) Deciphering the Inhibition of the Neuronal Calcium Sensor 1 and the Guanine Exchange Factor Ric8a with a Small Phenothiazine Molecule for the Rational Generation of Therapeutic Synapse Function Regulators. Journal of Medicinal Chemistry ASAP. DOI: 10.1021/acs.jmedchem.8b00088

A Saponaro, A Porro, **A Chaves-Sanjuan**, M Nardini, O Rauh, G Thiel, A Moroni (2017) Fusicocin Activates KAT1 Channels by Stabilizing their Interaction with 14-3-3-Proteins. The Plant Cell 29:2570-2580. DOI: 10.1105/tpc.17.00375

N Gnesutta, D Saad, **A Chaves-Sanjuan**, R Mantovani, M Nardini (2017) Crystal Structure of



the Arabidopsis thaliana L1L/NF-YC3 Histone-fold Dimer Reveals Specificities of the LEC1 Family of NF-Y Subunits in Plants. Molecular Plant 10; 645-648. DOI: 10.1016/j.molp.2016.11.006

A Mansilla, **A Chaves-Sanjuan***, NE Campillo, O Semelidou, L Martínez-González, L Infantes, J María González-Rubio, C Gil, S Conde, EMC Skoulakis, A Ferrús, A Martínez, MJ Sánchez-Barrena (2017) Interference of the complex between NCS-1 and Ric8a with phenothiazines regulates synaptic function and is an approach for fragile X syndrome. Proceedings of the National Academy of Sciences 114 (6) E999-E1008. DOI: 10.1073/pnas.1611089114 ***Co-first author**

V Nardone, **A Chaves-Sanjuan***, M Nardini (2017) Structural determinants for NF-Y/DNA interaction at the CCAAT box. Biochimica et Biophysica Acta (BBA)-Gene Regulatory Mechanisms. 1860, 571-580. DOI: 10.1016/j.bbagr.2016.09.006 ***Co-first author**

Chaves-Sanjuan A, Sanchez-Barrena MJ, Gonzalez-Rubio JM, Moreno M, Ragel P, Jimenez M, Pardo JM, Martinez-Ripoll M, Quintero FJ and Albert A (2014) Structural basis of the regulatory mechanism of the plant CIPK family of protein kinases controlling ion homeostasis and abiotic stress. Proceedings of the National Academy of Sciences 111 (42) E4532-E4541. DOI: 10.1073/pnas.1407610111

Romero-Pozuelo J, Dason JS, Mansilla A, Baños-Mateos S, Sardina JL, **Chaves-Sanjuán A**, Jurado-Gómez J, Santana E, Atwood HL, Hernández-Hernández A, Sánchez-Barrena MJ, y Ferrus A (2014) The guanine-exchange factor Ric8a binds to the Ca²⁺ sensor NCS-1 to regulate synapse number and neurotransmitter release. Journal of Cell Science 127(19): 4246-59. DOI: 10.1242/jcs.152603

Baños-Mateos S, **Chaves-Sanjuán A**, Mansilla A, Ferrús A, Sánchez-Barrena MJ (2014) Frq2 from Drosophila melanogaster: cloning, expression, purification, crystallization and preliminary X-ray analysis. Acta Crystallographica Section F 70: 530-534. DOI: 10.1107/S2053230X14005408

Chaves-Sanjuán A, Sánchez-Barrena MJ, González-Rubio JM, Albert A (2014) Preliminary crystallographic analysis of the ankyrin-repeat domain of Arabidopsis thaliana AKT1: identification of the domain boundaries for protein crystallization. Acta Crystallographica Section F 70: 509-512. DOI: 10.1107/S2053230X14005093

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del DPR n. 445/2000.

Il presente curriculum, non contiene dati sensibili e dati giudiziari di cui all'art. 4, comma 1, lettere d) ed e) del D.Lgs. 30.6.2003 n. 196.

Luogo e data: Milano, 15/7/19

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