Nombres:

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Apellidos:

BABUL CATTÁN

Contacto (Opcional):

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Título Profesional o Grado Académico (incluya el año de obtención):

LICENCIADO EN QUIMICA, 1966, PONTIFICIA UNIVERSIDAD CATOLICA DE CHILE.

Estudios de Postgrado o Especialización (institución donde lo obtuvo y año de obtención):

PH.D. IN BIOQUIMICA, 1971, UNIVERSITY OF IOWA, USA.

Actividad Actual e Institución en la cual trabaja:

PROFESOR TITULAR DE LA UNIVERSIDAD DE CHILE. DEPARTAMENTO DE BIOLOGÍA, FACULTAD DE CIENCIAS. DIRECTOR DEL PROGRAMA DE BACHILLERATO DE LA UNIVERSIDAD DE CHILE.

Reseña de su actividad laboral actual:

Bioquímica y Biología Molecular. Folding of proteins assisted by DNA binding: role of electrostatic interactions in the domain swapping mechanism of the FOXP and CSP families

PUBLICACIONES INDEXADAS: (últimos 10).

1. Caniuguir, A., Cabrera, R.,Báez, M., Vásquez, C.C., Babul, J. & Guixé, V. (2005) Role of Cys-295 on subunit interactions and allosteric regulation of phosphofructokinase-2 from *Escherichia coli.*FEBS Letters 579, 2313-2318. ISI
2. Cabrera, R., Caniuguir, A., Ambrosio, A.L.B., Guixé, V., Garratt, R.C. & Babul, J. (2006). Crystallization and preliminary crystallographic analysis of the tetrameric form of phosphofructokinase-2 from *Escherichia coli*,a member of the ribokinase family. Acta Crystallographica, Section F, Volume 62, Part 9, pag. 935-937. ISI
3. Baez, M., Cabrera, R., Guixé, V. & Babul, J. (2007) Unfolding pathway of the dimeric and tetrameric forms of phosphofructokinase-2 from Escherichia coli. Biochemistry 46, 6141-48. ISI
4. Baez, M., Merino, F., Astorga, G. & Babul, J. (2008) Uncoupling the MgATP induced inhibition and aggregation of *E. coli* phosphofructokinase-2 by C-terminal mutations. FEBS Letters 582, 1907-1912. ISI
5. Cabrera, R., Ambrosio, A., Garrat, R.C., Guixé, V. & Babul, J. (2008). Crystallographic structure of phosphofructokinase-2 from *Escherichia coli* in complex with two ATP molecules. Implications for substrate inhibition. J. Mol. Biol. 383, 588-602. ISI
6. Baez, M. & Babul, J.(2009) Reversible unfolding of dimeric phosphofructokinase-2 from Escherichia coli reveals a dominant role of inter-subunit contacts for stability FEBS Letters 583, 2054-2060. ISI
7. Cabrera, R., Babul, J. & Guixé, V. (2010) Ribokinase family evolution and the role of conserved residues at the active site of the PfkB subfamily representative, Pfk-2 from *E. coli.* Arch. Biochem. Biophys., 502, 23-30. ISI
8. Rivas-Pardo, J., Caniuguir, A., Wilson, C.A.M., Babul, J., & Guixé V. (2011) Divalent metal cation requirements of phosphofructokinase-2 from *E. coli*. Evidence for a high affinity binding site for Mn^{2+} . Arch. Biochem. Biophys. 505, 60–66. ISI
9. Cabrera, R., Baez, M., Pereira,, H M.., Caniuguir, A., Garratt, R. C. and Babul, J. (2011) The crystal complex of phosphofructokinase-2 of Escherichia coli with fructose-6-P: kinetic and structural analysis of the allosteric ATP inhibition. J. Biol. Chem. 286, 5774-5783. ISI
10. Baez, M., Wilson, C.A.M. & Babul, J. (2011) Folding kinetic pathway of phosphofructokinase-2 from *Escherichia coli*: a homodimeric enzyme with a complex domain organization.FEBS Letters 585, 2158–2164 ISI
11. Baez, M., Wilson, C.A.M., Ramírez-Sarmiento, C.A., Guixé, V.& Babul, J (2012) Expanded monomeric intermediate upon cold and heat unfolding of phosphofructokinase-2 from *Escherichia coli.* **Biophys. J.**, 103, 2187 - 2194. ISI
12. Ramirez-Sarmiento, C.A., Baez, M., Wilson, C.A.M., Babul, J., Komives, E., Guixé, V. (2013) Direct observation of solvent penetration during cold denaturation of *E. coli* phosphofructokinase-2.**Biophys. J.**, 104, 185- 193. ISI
13. Baez, M., Cabrera, R. Pereira, H.M., Blanco, A., Villalobos, P., Ramírez-Sarmiento, Caniuguir, C.A., Guixé, V., Garratt, R.C. & Babul, J. (2013) A ribokinase family conserved monovalent cation binding site enhances the MgATP-induced inhibition in *E. coli* phosphofructokinase-2. **Biophys. J.**, 105, 2254- 2263. ISI

PROYECTOS DE INVESTIGACIÓN: (últimos 10 años)

1. Project number : 1040892 Title : Análisis estructural y funcional de los sitios de unión de ligandos y control alostérico de la oligomerización de fosfofructoquinasa-2 de E.coli. Funding Source : FONDECYT. Role : Coinvestigador(a) Begin year : 2004 End year : 2007
2. Project number : 1050818. Title : Formación e interconversión de estructuras cuaternarias de enzimas: importancia de las interfaces de pfk-2 de e. coli para la estabilidad, la actividad catalítica y la regulación alostérica. Funding Source: FONDECYT. Role : Inv. Responsible. Begin year: 2005 End year: 2009.
3. Project number : 1070111. Title : Filogenia, mecanismo catalítico y especificidad de sustrato en enzimas de la superfamilia riboquinasa. implicaciones para la evolución de la superfamilia. Funding Source : FONDECYT. Role : Coinvestigador(a). Begin year: 2007 End year : 2011
4. Project number : 1090336. Title : A comprehensive model for the mechanism of allosteric regulation of e. coli phosphofructokinase-2. integration of kinetic, structural, dynamic and mechanic aspects. Role : Principal Investigator (PI). Begin year : 2009 End year : 2013
5. Project number : 1110137. Title : Evolution of ribokinase superfamily enzymes: structure-function relationships that determine substrate specificity, metal assisted mechanism and protein stability. Role : Coinvestigator (Co-PI). Begin year : 2011 End year : 2015
6. Project number 1130510. Begin year: 2013. End Year: 2016 Folding of proteins assisted by DNA binding: role of electrostatic interactions in the domain swapping mechanism of the FOXP and CSP families

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