CURRICULUM VITAE INVESTIGATOR

PERSONAL DATA

Father's name	Name
Asenjo	**Juan A.**

Birth date	Age (at 15/07/2011)	Gender (M o F)	Nationality(ies)
October 7, 1949	61	M	Chilean/British

Title	Academic Degree
Chemical Engineering	Ph.D. Biotechnology Engineering

Current position	Institution (Department, Faculty, Institution)
Professor Director Centre for Biochemical Engineering and Biotechnology (CIByB) Director Institute for Cell Dynamics and Biotechnology(ICDB): a Centre for Systems Biology	University of Chile, Faculty of Physical and Mathematical Sciences, Department of Chemical Engineering and Biotechnology

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EDUCATION, ACADEMIC AND PROFESSIONAL EXPERIENCE

University of Chile, Santiago	Chem.Eng.Diploma	1974	Chemical Engineering
University of Leeds, U.K.	M.Sc.	1975	Food Engineering
University of London (U. College)	Ph.D.	1978	Biotechnology Engineering

RESEARCH AND/OR PROFESSIONAL EXPERIENCE

ACADEMIC EMPLOYMENT

1978-1980 Associate Professor, University of Chile.

1980-1987 Associate Professor (Asst. Prof. 1980-1984), Director of Biochemical Engineering Laboratory, Columbia University, New York.

1986-1995 Reader, Director of Biochemical Engineering Laboratory, University of Reading, England.

1995-present Professor, Director, Centre for Biochemical Engineering and Biotechnology, University of Chile

2007(Jan)-Present Director of the Millenium Institute for Cell Dynamics and Biotechnology (ICDB):a Centre for Systems Biology, University of Chile

Ph.D. students:
Directed 46 Ph.D. Theses in USA, England and now in Chile.

HONORS, AWARDS AND EDITORIAL POSITIONS

2004	**National Science Prize** (Applied Science and Technology).
1997-2001	Presidential Chair in Science Award.
2010-present	President Chilean Academy of Sciences. (2004-2009) Vice President and Foreign Officer. (2003-2009) Foreign Officer of the Chilean Academy of Sciences.
1995-present	Member of the Editorial Board of 7 of the main International Journals in Biotechnology: Biotechnology and Bioengineering, Enzyme and Microbial Technology, Biotechnology Advances, Bioprocess and Biosystems Engineering, Biotechnology Letters, Bioseparation and Journal of Microbiology and Biotechnology.
1986	Selected as one of 7 young investigators from all over the US to be a member of the 15 person US delegation to the US/Japan Joint Biotechnology Conference at Lake Biwa.
1986-1989	Elected Councillor of the American Chemical Society, Representative of the Microbial and Biochemical Technology Division.
1985	Elected Member of the Permanent Committee of Biotechnology of the Intersciencia Association (AAAS).

MAIN PUBLICATIONS IN MEDIA WITH EDITORIAL COMMITTEE

Montagna, J.M., Vecchietti, A., Iribarren, O.A., Pinto J.M. and Asenjo, J.A. (2000) Optimal design of protein production plants with time and size factor process models. Biotechnol. Progress, **16**, 228-237.

Shene, C., Mir, N., Andrews, B.A. and Asenjo (2000) Effect of the growth conditions on the synthesis of a recombinant β-1,4-endoglucanase in continuous and fed-batch culture. Enz. Microb. Technol., **27**, 248-253.

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Lienqueo, M.E. and Asenjo, J.A. (2000) Use of expert systems for the synthesis of downstream protein processes. Comput. Chem. Engng., **24**, 2339-2350.

Andrews, A.T., Harris, D.P., Wright, G, Pyle, D.L. and Asenjo, J.A. (2000) Affinity gel electrophoresis as a predictive technique in the fractionation of transgenic sheep milk proteins by affinity aqueous two-phase partitioning Biotechnol. Letts., **22**, 1349–1353.

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Pinto, J.M., Montagna, J.M., Vecchietti, A.R., Iribarren, O.A. and Asenjo, J.A. (2001) Process performance models in the optimization of multiproduct protein production plants. Biotechnol. Bioeng., **74**, 451-465.

Asenjo, J.A., Mistry, S.L., Andrews, B.A. and Merchuk, J.C. (2002) Phase separation rates of aqueous two-phase systems: correlation with system properties. Biotechnol. Bioeng.**79**, 217-223.

Gonzalez, R., Andrews, B.A. and Asenjo, J.A. (2002) Kinetic model for BiP- and PDI-mediated protein folding and assembly. J. Theor. Biol., **214**, 529-537

Salamanca, M.H., Barria, C., Asenjo, J.A. and Andrews, B.A. (2002) Isolation, purification and preliminary characterization of cryophilic proteases of marine origin. Bioseparation. **10**, 237 – 241.

Berggren, K., Wolf, A., Asenjo, J.A., Andrews, B.A. and Tjerneld, F. (2002) The surface exposed amino acid residues of monomeric proteins determine the partitioning in aqueous two-phase systems. Biochim. Biophys. Acta. **1596**, 253-268.

Lienqueo, M.E., Mahn A. and Asenjo J.A. (2002) Mathematical correlations for predicting protein retention times in hydrophobic interaction chromatography. J. Chromatography A, **978**, 71-79

Gonzalez, R., Andrews, B.A., Molitor, J. and Asenjo, J.A. (2003) Metabolic analysis of the synthesis of high levels of intracellular human SOD in S. Cerevisiae rhSOD 2060 411 SGA122. Biotechnol. Bioeng. 82, 152-169.

Shene, C., Andrews B.A. and Asenjo J.A., (2003) Study of recombinant micro-organism populations characterized by their plasmid content per cell using a segregated model. Bioprocess and Biosyst. Eng. **25**, 333-340.

Olivera-Nappa, A, Andrews, B.A. and Asenjo J.A., (2004) A mixed mechanistic-electrostatic model to explain pH dependence of glycosyl hydrolase enzyme activity. Biotechnol.Bioeng., **86**, 573 – 586.

Asenjo, J.A. and Andrews, B.A. (2004) Is there a Rational Method to Purify Proteins? : From Expert Systems to Proteomics. J.of Molecular Recognition, **17**, 236-247.

Iribarren, O.A., Montagna, J.M., Vecchietti, A.R., Andrews, B.A., Asenjo J.A., and Pinto J.M. (2004) Optimal Process Synthesis for the Production of Multiple Recombinant Proteins. Biotechnolgy Progress **20** , 1032 – 42

Mahn, A., Lienqueo, M.E. and Asenjo, J.A. (2004) Effect of Surface Hydrophobicity Distribution on Protein Retention in Hydrophobic Interaction Chromatography. J. of Chromatography A, **1043**, 47-55

Olivera-Nappa, A., Lagomarsino, G., Andrews, B.A. and Asenjo, J.A., (2004) Effect of Electrostatic Energy on Partitioning of Proteins in Aqueous Two-Phase Systems, J. of Chromatography B, **807**, 81-86.

Andrews, B.A., Schmidt, A.S. and Asenjo, J.A., (2005) Correlation for the Partition Behaviour of Proteins in Aqueous Two Phase Systems: Effect of Surface Hydrophobicity and Charge. Biotechnol.Bioeng 90, 380 – 390.

Mahn, A., Zapata, G. and Asenjo, J.A., (2005) A theory of protein-resin interaction in hydrophobic interaction chromatography, J. of Chromatography A, **1066**, 81-88.

Salgado, C., Rapaport, I. and Asenjo, J.A., (2005) Is it possible to predict the average surface hydrophobicity of a protein using only its amino acid composition? J. of Chromatography A, **1075**, 133-143.

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Ezquer, F., Núñez, M.T., Asenjo, J.A. and Israel, Y., (2006) Hereditary Hemochromatosis: an opportunity for gene therapy. Biol. Res., **39,** 113-124.

Salgado, C., Rapaport, I. and Asenjo, J.A. (2006) Predicting the behaviour of proteins in hydrophobic interaction chromatography, 1: using the hydrophobic imbalance (HI) to describe their surface amino acid distribution J. Chromatography A., **1107**, 110-119.

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Lienqueo, M.E., Mahn, A., Navarro, G., Perez-Acle, T., Salgado, J.C., Rapaport, I., Asenjo, J.A. (2006), New approaches for predicting protein retention time in hydrophobic interaction chromatography. J. Molec. Recog. **19**, 260-9.

Shene, C., Lucero, A., Andrews, B.A. and Asenjo, J.A (2006) Mathematical Modelling of Elution Curves for a Protein Mixture in Ion Exchange Chromatography and for the Optimal Selection of Operational Conditions. Biotechnol.Bioeng **95**, 704-713.

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Lienqueo, M.E, Mahn A., Salgado, J.C. and Asenjo, J.A. (2007) Current insights on protein behaviour in hydrophobic interaction chromatography. Journal of Chromatography

B. **849**, 53-68.

Asenjo, J.A., Ramirez, P., Rapaport, I., Aracena, J., Goles, E., and Andrews, B.A. (2007) A Discrete Mathematical Model Applied to Genetic Regulation and Metabolic Networks. J. of Microbiology and Biotechnology **17**, 496-510.

Salazar O. and Asenjo J.A. (2007), Enzymatic lysis of microbial cells. Biotechnol Lett, **29**, 985 – 994.

Kaltenbrunner O., Giaverini O., Woehle D. and Asenjo J.A. (2007) Application of Chromatographic Theory for Process Characterization Towards Validation of an lon-Exchange Operation. Biotechnol.Bioeng., 98, 201-210.

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Díaz, H., Andrews, B.A., Hayes, A., Castrillo, J., Oliver, S. and Asenjo, J.A. (2009) Global Gene Expresion in Recombinant and Non-Recombinant Yeast *Saccharomyces cerevisiae* In Three Different Metabolic States. Biotechnology Advances. 27, 1092-1117.

Contador, Carolina A., Rizk, Matthew L., Asenjo, J.A. and Liao, James C. (2009) Ensemble modeling for strain development of $_{L}$-lysine-producing Escherichia coli. Metabolic Engineering, **11**, 221-233.

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Merino, M.P. Andrews, B.A. and Asenjo, J.A. (2010) Stoichiometric Model and Metabolic Flux Analysis for Leptospirilum ferrooxidans. Biotechnology and Bioengineering, **107**, 696-706.

Sandoval, G., Shene, C., Andrews, B.A. and Asenjo, J.A. (2010) Extension of the Selection of Protein Chromatography and the Rate Model to Affinity Chromatography. Journal of Molecular Recognition, **23**, 609-617.

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Selection Tool (MOSST): an algorithm to predict structure-function related mutations in proteins. BMC Bioinformatics, 12, 122, 1-22

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Contador, C., Andrews, B., Liao, J., and Asenjo J.A. (2011) Identification of Transcription Factors perturbed by the Synthesis of High Levels of a Foreign Protein in Yeast *Saccharomyces cerevisiae.* Biotechnology Progress, in press.

PATENTS

European Patent: WO9612013, 25-04-1996., A Novel Enzyme with beta-1,3-Glucanase Activity. Inventors: Asenjo, J., Ferrer, P., Hedegaard, L., Diers, I., Halkier, T. and Savva, D.

US Patent: US,5,919,688, July 6, 1999, Enzyme with B-1, 3-glucanase activity. Inventors: Ferrer, P., Diers, I., Hedegaard, L., Halkier, T., Asenjo, J. and Savva, D.

US Patent:"Materials and Methods for Regulating Process Formation in Cell Culture", US 60/459,506, March 31, 2003, Inventors: Caviedes, P., Caviedes, R., Freeman, T.B., Asenjo J.A., Andrews, B.A., Sepulveda D., Arriagada, C., Rivera, J.S.

US Patent:"Protein and Nucleic Acid Sequence Encoding a Krill-Derived Cold Adapted Trypsin-Like Activity Enzyme", US 10/896,010 July 22, 2004. Inventors: Asenjo J.A., Andrews, B.A.,Reyes, F., Salamanca M., Burzio L.

US Patent:"Protein and DNA Sequence Encoding a Cold Adapted Subtilysin-like Activity" US60/954,198, August 8, 2007, Inventors: Asenjo, J.A., Andrews, B.A., Acevedo, J.P., Reyes, F., Burzio, L.

US Patent: "Protein and DNA Sequence Encoding a Cold Adapted Xylanase" US61/150,545, February 6, 2009, Inventors: Asenjo, J.A., Andrews, B.A., Acevedo, J.P., Parra, L., Burzio, L.