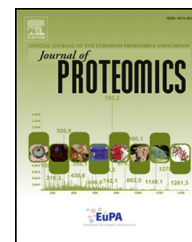


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Review

Two decades of proteomics in Latin America: A personal view[☆]

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ABSTRACT

Proteomics is the charming young daughter of classical protein chemistry. It was conceived in 1975, year of invention of the first proteomic technique, the procedure to separate *Escherichia coli* and mouse tissue proteins in a two-dimensional polyacrylamide gel. Pregnancy, however, lasted for over 10 years and deliverance occurred together with sister protein mass spectrometry. Jointly, the two techniques changed protein chemistry moving it from the study of single molecular entities to whole cell extracts and fluids.

This review does not propose to report state-of-the art in proteomics in Latin America but rather to describe its development with emphasis on leading Brazil and Cuba as well as discuss proteomic research in these and other countries exposing the history and stories of researchers and selected laboratories that contributed to its establishment and development in the last 20 years.

Biological significance

This manuscript accounts for the fact that proteomics was present in Latin America since its birth. However, because the political and the economic situation in the region during the eighties and nineties were not favorable for science expansion, its beginning was shy. This changed at the dawn of the 21st century in such a way that a Latin American country, Brazil, became number 10 in manuscripts published in high impact journals as the Journal of Proteomics and Proteomics in 2012/2013.

Interestingly, actual prevailing research themes come from centenary protein areas of study – e.g. neglected diseases – that quickly migrated from classical protein chemistry to proteomics, especially human parasites and snake, scorpion and spider venoms.

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Contents

48	1. Introduction	0
49	2. Brazil	0
50	2.1. Classical proteomics	0
51	2.2. Federal District, Brasilia	0
52	2.2.1. University of Brasilia	0
53	2.2.2. Brazilian Agricultural Research Corporation (Empresa Brasileira de Agropecuária, Embrapa)	0
54	2.2.3. Catholic University of Brasilia	0
55	2.3. São Paulo state	0
56	2.3.1. São Paulo State University, UNESP, Rio Claro	0
57	2.3.2. Brazilian Biosciences National Laboratory (LNBio), Campinas	0
58	2.3.3. Instituto Butantan, São Paulo	0
59	2.3.4. University of São Paulo, USP, Ribeirão Preto	0
60	2.4. Paraná State, Curitiba	0
61	2.4.1. Carlos Chagas Institute	0
62	2.5. Minas Gerais state	0
63	2.5.1. Department of Biochemistry and Immunology, Federal University of Minas Gerais, UFMG	0
64	2.6. Rio de Janeiro State: proteomic network	0
65	2.6.1. Introduction	0
66	2.6.2. Federal University of Rio de Janeiro, UFRJ	0
67	2.6.3. Fiocruz Foundation	0
68	2.6.4. National Institute of Cancer	0
69	2.7. Contribution of international scientists	0
70	2.8. Contribution of supporting agencies	0
71	3. CUBA	0
72	4. Latin America	0
73	Transparency document	0
74	Uncited reference	0
75	Acknowledgments	0
76	References	0

Q8 1. Introduction

80 Proteomics is the charming young daughter of classical
81 protein chemistry. It was conceived in 1975, year of invention
82 of the first proteomic technique, the procedure to separate
83 **Q9** *Escherichia coli* (O'Farrell) and mouse tissue proteins (Klose)
84 in a two-dimensional polyacrylamide gel [1,2]. Pregnancy,
85 however, lasted for over 10 years and deliverance occurred
86 together with sister protein mass spectrometry. Jointly, the
87 two techniques changed protein chemistry moving it from
88 the study of single molecular entities to whole cell extracts
89 and fluids.

Q10 The political and the economic situation in Latin America
91 during the eighties and nineties were not favorable for
92 science expansion. In spite of this, several groups were very
93 active in protein research in those years. This work does not
94 intend to give a detailed description of proteomics in the
95 region but give a general idea of its development in Latin
96 America, with emphasis in the leading countries, Brazil and
97 Cuba, as well as explaining some characteristics of proteo-
98 mics in these countries exposing the history and stories of
99 researchers and selected laboratories that contributed to the
100 establishment and development of proteomics in the last
101 20 years.

2. Brazil

103

At the beginning, protein chemistry and mass spectrometry 104
lived parallel lives. Then, they joined efforts and recently, a 105
leading scientific journal consecrated an issue to proteomics 106
in Brazil [3]. The conditions that made possible this outstand- 107
ing achievement have roots in the boundless leadership 108
of senior native protein chemists, in the understanding 109
of the importance of proteomics by Brazilian State and Federal 110
science supporting Agencies and Foundations and to the 111
unconditional devotion of foreign researchers to the training 112
of Brazilian young scientists. 113

This section accounts for the development and consolida- 114
tion of proteomics and research groups in Brazil from the 90's. 115

2.1. Classical proteomics

116

During the first decade most active protein senior groups were 117
headed by Lauro Morhy (University of Brasilia, UnB), Lewis Joel 118
Greene (São Paulo University, Ribeirão Preto Campus; USP-RP), 119
Benedito Oliveira (University of Campinas, UNICAMP), Carlos 120
Ribeiro Diniz (Federal University of Minas Gerais/Ezequiel Dias 121
Foundation, UFMG/FUNED), Antonio CM Paiva and Luis Juliano 122
Netto (Federal University of São Paulo, UNIFESP) and Gilberto B 123

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