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Cytotoxicity of misfolded/aggregated transthyretins and other amyloidogenic polypeptides

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Amyloidogenic diseases (e.g., Alzheimer's, Parkinson's, senile systemic amyloidosis, and some familial amyloid polyneuropathies) involve misfolded/aggregated polypeptides. The toxicity mechanisms by which misfolded/ aggregated polypeptides contribute to disease processes such as neuro-degeneration is not well understood. Our studies on the cytotoxicity of amyloid-beta and transthyretin (prealbumin) will be presented, as well as some biophysical analyses that relate protein structural changes to toxicity. Cellular and Biochemical toxicity assays that may be useful for screening and identifying potential therapeutic compounds will also be described. Our results highlight disruptions of cellular redox balance, as well as changes in cell membrane structure and function. Studies on the relation of such disruptions to aging will also be discussed.

Biography

A. Vieira completed his BSc and PhD studies in Alberta, Canada, and postdoctoral studies in California, USA. He is currently Associate Professor, and Director of the Nutrition and Metabolism Research Laboratory, Biomedical Physiology (BPK) Department, Simon Fraser University, Burnaby, Canada. He has over 90 publications, including research papers in major international journals, with over 1500 citations. Dr. Vieira has served as reviewer and editorial board member for journals related to biomedical research, molecular and cellular biology, as well as educational and scientific books.

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