

5<sup>th</sup> International Conference on

# CURRENT TRENDS IN MASS SPECTROMETRY AND CHROMATOGRAPHY

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### The use of mass spectrometry to study the human pituitary: the future of neuroendocrinology

This lecture will discuss the use of mass spectrometry (MS) method to elucidate basic molecular mechanisms in the human pituitary. We discovered many novel proteins, and further studies on those new proteins will uncover many novel pathways that are important in neuroendocrinology. We used control (post-mortem) and adenoma (post-surgical) human pituitary tissues as the platform for these studies. We quantified endogenous enkephalin and endorphin opioid peptides in controls and adenomas with novel quantitative MS methods, MS/MS and stable isotope-incorporated synthetic peptide internal standards (IS). We elucidated differential processing of proenkephalinergic and proopiomelanocortin (POMC) neuropeptidergic systems among controls, prolactin-secreting microadenomas and non-secreting macroadenomas. We discovered growth hormone (GH) isoforms; differentially expressed proteins (n=56) between controls and macroadenomas; novel phosphoproteins (n=26); and oxidative stress nitroproteins (NS; n=9). All these data significantly extend our knowledge of human neuroendocrinology.

### Biography

Dominic M Desiderio spent 11 years at the Baylor College of Medicine Institute for Lipid Research, where he achieved the rank of Associate Professor. In 1978, he moved to the University of Tennessee, Health Science Center, where he is a Professor of Neurology (Chemistry) in the Department of Neurology, Professor of Molecular Sciences in the Department of Molecular Sciences, and Director of the Charles B Stout Neuroscience Mass Spectrometry Laboratory. His research focuses on basic molecular mechanisms in several human pathologies; in particular, pituitary adenomas. Currently, he uses proteomics to analyze phosphoproteins, nitroproteins and differentially expressed proteins in human tissues and fluids. Other areas of research include qualitative and quantitative analytical measurements of neuropeptides in tissues and fluids. He is an Editor of the Wiley journal Mass Spectrometry Reviews, and a Co-editor of the Wiley Book-Series on Mass Spectrometry.

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