

## SYNTHESIS OF NEUROPEPTIDE Y FRAGMENTS AS POTENTIAL LIGANDS FOR THE OPIATE RECEPTORS

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Western Michigan University, 2009

Neuropeptide Y, a 36 residues endogenous peptide, is widely distributed in the central and peripheral nervous system. NPY is found to regulate blood pressure, stress and appetite. NPY has been linked to obesity in rats. Portions of the primary NPY sequence are structurally similar to morphiceptin [H-Tyr-Pro-Phe-Pro-NH<sub>2</sub>], an opioid ligand for opioid receptors. Opioid receptors are a group of G-protein coupled receptors. There are 3 major opioid receptors:  $\mu$ -,  $\delta$ - and  $\kappa$ - receptors. We selected NPY [1-5], NPY [1-6] and NPY [2-5] as potential ligands for the opioid receptors. Attempts were made to synthesize the peptides via classical solution phase peptide synthesis, microwave assisted peptide synthesis and solid phase peptide synthesis. We found solid phase peptide synthesis was a quick and efficient way to synthesize the amount of peptides needed for peptide characterization and binding assays. We utilized nuclear magnetic resonance (NMR), high pressure liquid chromatogram (HPLC) and mass spectrometry (MS) to characterize the peptides.