



# Biology @ Acadia

## ROLE OF HEAT SHOCK PROTEINS IN THE RELAXIN-INDUCED REDUCTION OF CELLULAR INJURY DUE TO ISCHEMIA

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Organotypic rat brain slice culture was used to study the cellular protective effect of the hormones relaxin 2 and 3 under oxygen and glucose deprivation (OGD) stress. The production of the heat shock protein (Hsp) 70, which is highly stress inducible, enhances the ability of cells to effectively inhibit cell death processes and was used as an indicator of cellular stress. Brain slices (400 $\mu$ m) from neonatal rats, at the level of the somatosensory cortex, were cultured for 14 days and divided



between 4 treatment groups: normoxic control group (oxygenated balanced salt solution (BBS) with glucose), hypoxic (deoxygenated glucose free-BSS), hypoxic with  $10^{-7}$  M human relaxin 2 and hypoxic with  $10^{-7}$  M human relaxin 3. Treatments lasted for one hour and then slices were returned into normal culture conditions. Hsp70 levels in brain tissue were analyzed 1 hour later using a human/mouse/rat total Hsp70 Enzyme Linked Immunosorbent Assay (ELISA) kit and immunofluorescent staining for the presence of Hsp70. Relaxin 2/3 treatment groups showed an overall decrease in the production of Hsp70, indicating relaxin peptides might have effects that reduce cellular stress under OGD conditions.

**James Nunn** from Coldbrook N.S. graduated from Central Kings Rural High School in 2009 and is currently completing his Honours thesis in your 35th year in Biology at Acadia. James has been on the Dean's List every year while attending Acadia University and received an NSERC USRA to help fund his honour's research. He is a member of the Acadia University Varsity Soccer Team and had been a CIS Academic All-Canadian every year. In his spare time he volunteers with Special Olympics, S.M.I.L.E and will be going on Acadia's Global Brigade to Honduras in May. After graduating from Acadia James is looking to pursue medicine.

