UNIVERSITY OF PITTSBURGH

Student Profile

Name: Reza Sedighi Manesh

Major: Neuroscience **Minor**: Chemistry

Honors and Awards:
- University Scholar
- Beckman Research Fellowship
- NIMH Research Fellowship
- Chancellor's Undergraduate Research Fellowship
- Brackenridge Research Fellowship

Experience and Community Outreach:
- Teaching Assistant, Chemistry II and Honors Human Physiology
- Presenter, International Meeting of Society for Study of Ingestive Behavior
- President, Neuroscience Club
- Volunteer, UPMC

Publication:
- MANESH R, HOFFMANN ML, STRICKER EM. Water ingestion by rats fed high-salt diet may be mediated, in part, by visceral osmoreceptors. *American Journal of Physiology* 290: R1742-R1749, 2006.

Future Plans
"Next year I hope to attend medical school in Pennsylvania. In this regard, I have recently had interviews at the University of Pittsburgh School of Medicine and at Penn State College of Medicine."

Voting Information
Franklin Park, PA

Project Abstract
It has been known for many years that unique brain cells monitor and influence thirst and vasopressin (VP) secretion in response to changes in systemic blood osmolality. For example, after eating salty chips, the salt travels through the stomach into the small intestine, where digestion and absorption occur, and finally elevates the Na+ concentration in systemic blood. The cerebral osmoreceptors detect the elevation in blood Na+ concentration and promptly stimulate thirst and VP secretion, thereby bringing body fluid concentration back to normal. Recent findings have suggested the presence of cells that influence thirst and VP secretion according to the concentration of fluid that leaves the stomach and enters the small intestine; that is, before systemic blood osmolality is altered and therefore before cerebral osmoreceptors can be influential. These cells appear to be located adjacent to the stomach and duodenum, and thus are called "visceral osmoreceptors". The project I have recently completed, suggests that visceral osmoreceptors stimulate thirst. However, an important issue remains to be addressed: Are these receptors actually sensitive to osmolytes collectively or are they sensitive only to sodium? In other words, are they Na+-specific receptors or osmoreceptors? I am now conducting experiments designed to provide insight into this issue.

Project Faculty Advisor: Edward Stricker, Department of Neuroscience, School of Arts and Sciences, Pittsburgh Campus