

## CWSF 2013 - Lethbridge, Alberta



### Daphnee Dubouchet-Olsheski

#### Development of an Aptamer-based MRI Contrast Agent for Thrombin Detection

**Challenge:** Health

**Category:** Senior

**Region:** Ottawa

**City:** Ottawa, ON

**School:** Elmwood School

**Abstract:** Thrombin is an enzyme that works to form blood clots. An MRI contrast agent can be targeted to a protein by conjugating it to an aptamer. The development of a targeted contrast agent could enhance the diagnostic value of the MR images. The first phase of this project involved the synthesis of aptamer-chelate conjugates. The aptamer-chelate conjugates, could be screened to find the best system for measuring thrombin.

#### Biography

Writing science literature has been a pastime for Daphnée Dubouchet-Olsheski, a high school junior, since the age of 10 when she published an environment newspaper winning praise from the Environment Minister and the Prime Minister of Canada. She went on to write prize-winning essays on endangered species. Travels to the Arctic and Antarctic regions spurred her to indite upon the rapidly changing environment. Her poem, International Emergency, was published at age 12. Grade 9 Science ignited a passion for experiments and documenting. Since, she's been avid in making science a palatable conversation piece blogging weekly about the exciting combustion of methane gas, stem cell research and healing a broken a heart, pig and sheep heart dissections, rat dissections with multi-coloured organs, healthy and diseased lung inflation, evolutionary biology, electrolysis and water molecules, transforming the compound of a magnesium ribbon, etc. Her current research in nanotechnology has her thinking about very small things in a broader context. Creating DNA and using aptamer technology occupies her as she progresses in finding an efficient alternative to detecting blood clots. On the cusp of this technology, she counts herself lucky to be hands-on in helping to make advances in innovative...

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