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Xenon Shoots and Scores in Genetic-Based Drug Discoveries

Xenon Pharmaceuticals Inc., Vancouver, BC

While no one will ever examine the genetic history of the Sutter family to uncover the genes that could have led to six of seven brothers playing in the NHL, capturing six Stanley Cups in the process, scientists have always had an extreme interest in rare families and what makes them tick.

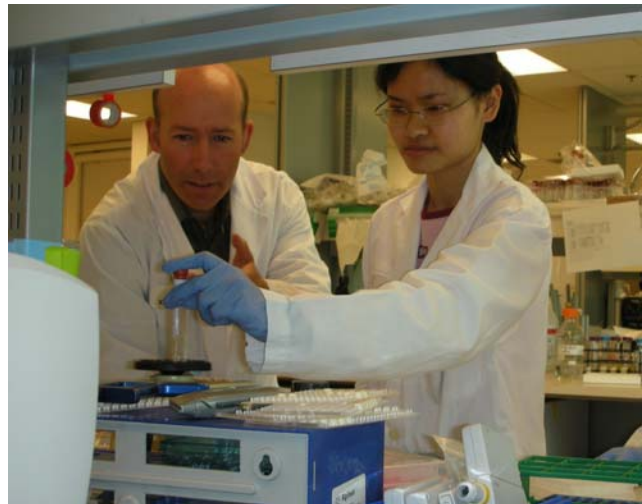
For most families, their genetic history may be as interesting as to the outside world as “all the men in our family have big noses” or “they get their red hair from their grandfather’s side” but for a few extremely rare families, their genes hold the secret to the treatment, or eventual cure, of devastating diseases.

Finding and analyzing these families is all part of a days work for the people at Xenon Pharmaceuticals Inc. in Vancouver, BC. By looking at populations with rare genetic disorders that represent extreme forms of common human diseases, they hope to discover the key biological targets that Xenon expects will lead to development of novel and innovative medicines to treat the underlying common disease.

The company’s Extreme Genetics program is used to identify the root genetic mechanism that if altered, could be used to treat the more common complex diseases involving more than one gene, or a combination of genetic and environmental factors.

The Extreme Genetics technique has already identified a number of new genes (e.g. ABC1, FZD4 and HSF4) that are implicated in families with cardiovascular disease, vitreoretinopathy and cataracts. They have since gone on to use this clinical genetics-based drug development process to create a range of drugs with the potential to transform patient care in pain, diabetes and disorders of iron metabolism.

Currently, one of Xenon’s products, a novel pain therapeutic with the potential for treating inflammatory, neuropathic, post surgical and muscular pain has recently completed Phase 1 clinical development and will initiate Phase 2 in the near term.



A second product has great promise in the fight against diabetes and obesity. Xenon’s creation of a molecular drug that inhibits a certain enzyme, resulting in leanness, or the opposite of obesity, is an important find, especially since 300 million people worldwide are diagnosed as clinically obese. Three years ago, Xenon discovered through more genetic studies, a defective protein that plays an important role in the regulation and availability of iron for red blood cell production. Roche, a leading company in the field of anemia, showed great interest and partnered with Xenon on further research. This past June, Xenon partnered with Merck to discover and develop novel small molecule candidates for the potential treatment of cardiovascular disease.

Xenon’s approach of looking for the opposite clinical features to a common disease, including the analysis of rare genetic disorders, is akin to uncovering needles in haystacks. “Once identified, these needles (genes) represent key new targets to develop new drugs against; drugs that we hope are more directed and ultimately work better with fewer side effects. It is these rare families that teach us the biology that’s truly critical to drug discovery,” says Dr. Simon Pimstone, President and CEO of Xenon.

While these genetically interesting populations are already well known to geneticists, and includes populations from French-speaking Quebec, it’s not likely the Xenon scientists will be knocking on your door any time soon. It’s about as likely as six brothers from the same family making it into the NHL. But Xenon’s drug discoveries, like the Sutter brothers’ performances, will one-day benefit a much bigger audience.