

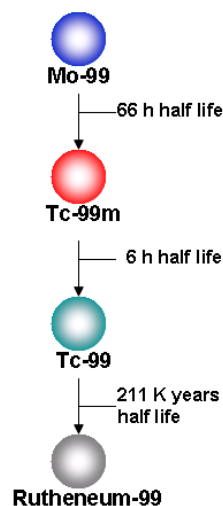
## Prairie Isotope Production Enterprise (PIPE) Helping to Solve the Isotope Crisis

### Project Summary

The Prairie Isotope Production Enterprise (PIPE) is a not-for-profit corporation based in Manitoba formed by the University of Winnipeg and various partners. PIPE has submitted a proposal to the Expert Review Panel on Medical Isotope Production set up by Natural Resources Canada. Our plan is to have a reliable supply technetium-99m (Tc-99m) produced in Canada to serve Canadian patients, using commercially available molybdenum metal as a starting material and Canadian-built electron accelerator technology. The initial required capital is estimated to be \$2M, with total required capital of \$35M, and we are already discussing partnership options with private investors.

### The Science

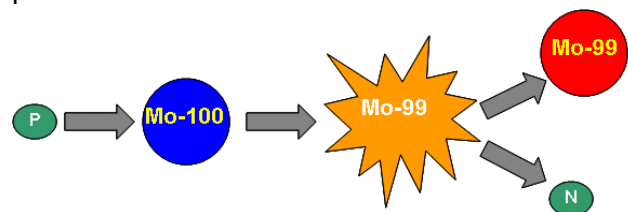
Technetium-99m (Tc-99m), the decay product from Mo-99, is widely used in medical imaging and accounts for the largest proportion of nuclear medicine diagnostic procedures. Canada's Tc-99m has in the past been supplied by foreign companies that



source their molybdenum-99 (Mo-99) from ageing nuclear reactors around the world, including Atomic Energy of Canada Limited's (AECL) National Research Universal (NRU) reactor. Given the relatively short half-life of Mo-99 (66 hours) and the shorter half-life of Tc-99m (6 hours), it cannot be stockpiled for later use.

### The Issue

The production of Mo-99 must be done continuously, which can sometimes be difficult for older facilities. The Government of Canada plans to secure the long-term supply of Tc-99m and is looking to the Canadian companies and research groups to provide options that meet the needs of Canadian patients.



### Making Mo-99 with an EB Accelerator

### PIPE's Process

PIPE's process is based on proven technologies already in the marketplace. We spray electricity from an electron accelerator onto molybdenum metal, which produces the

Mo-99 radioisotope. We then supply this Mo-99 to Canadian hospitals and clinics across the country.

We chose our accelerator process because it is **less expensive** and can be ready sooner than most other options. The equipment we need is **already commercially available** in Canada and the chemical processing method has been **approved** in Canada before. Unlike a process that uses uranium as a starting material (nuclear reactors and some accelerators) the PIPE process has **no radioactive wastes** and a relatively large Mo-99 yield. We also **recycle all** of the starting molybdenum metal.

### Why is PIPE Unique?

**A world-class scientific team**; including the University of Winnipeg, University of Manitoba, University of Saskatchewan, Winnipeg Regional Health Authority, Winnipeg’s Health Sciences Centre, The National Research Council (through Canadian Light Source Inc.), the provincial governments of Manitoba and Saskatchewan, and Acsion Industries and Mevex Corporation, Canadian leaders in electron accelerator manufacturing and processing technologies.

**Our link to the healthcare end users** who make radioisotopes every day for patients (Winnipeg’s Health Science Centre) makes PIPE unique. Facilities and licences are in

place, reducing the time we need to get products to patients.

**Lower start-up costs**; PIPE can either be a primary or secondary supplier of Mo-99 ensuring a secure supply. PIPE is committed to working with other Canadian manufacturers and researchers as well.

**Our process is not theory** – we have made Mo-99 already and we are looking to scale up production.

### Supplying Canadians

Over 1.6 Million doses of Tc-99m, costing \$60 million, are administered to Canadian patients each year. PIPE wants to **supply at least 50% of this demand within three years**, making our business model sustainable. PIPE can also be structured to be a back-up supplier to existing Mo-99 manufacturers, ensuring that a supply is always available.

### Benefits to Canadians

**A secure domestic supplier** of Tc-99m focused on serving Canadian patients.

**A business model** that can have multiple production facilities across the country to ensure a continuous supply of products.

**No radioactive wastes** and all materials are recycled.

### For Further Information

Chris Saunders  
Acsion Industries  
Pinawa, MB R0E 1L0  
204-753-2255 x2272  
saunders@acsion.com

