Medical isotope development and supply opportunities in the 21st century

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Research in extending medical isotopes for the diagnosis and treatment of numerous health maladies is hampered by outages and upsets in major supply sources. Investigations in cures for brain cancer (Astatine-211), HIV/AIDS virus (Bismuth-213), and even bacterial vectors are either in reduced progress mode or have been cancelled until isotopes become available. Examples of several key radioactive medical isotopes include Technetium-99m for diagnostics, Iodine-131 for non-Hodgkin's Lymphoma and thyroid cancer, Actinium-225 for acute myelogenous leukemia, and Copper-67 for lymphoma cancer. Possibilities for developing commercially viable sources using compact accelerators and next generation research and production reactors are discussed.