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## Radioactive materials: Winning the battle against cancer

Radiopharmaceuticals are drugs containing a radioactive atom that can be used for the treatment of certain cancers. The radiopharmaceuticals we are interested in consist of a radioactive source contained in a molecular cage and are directed to specific sites in the body via a targeting molecule. Rhenium (Re) is a useful radioactive source that can effectively kill surrounding cells with the energy it emits. It is important for the radioactive source to be secured in the molecular cage so that it will not irradiate unwanted parts of the body. A radiopharmaceutical that will more effectively irradiate the tumor may require fewer testaments, less overall discomfort, and will hopefully result in a lower cost for patients.

The focus of this study was to design the cage that would effectively hold Re. Once Re was contained in the cage it was reacted with phosphine to increase its stability. Characterization methods were employed to insure that the structure had formed, but further characterization is needed. If determined stable, radioactive Re will be tested for stability in rat serum.