

NON-TECHNICAL ABSTRACT: *(State in layman's terms the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project.)*

Our long-term objective in this proposal is to determine how a cell factor, HIF1 α , controls the efficiency of reprogramming regular adult cells into an embryonic stem cell-like state. We will accomplish this using specific study aims that include artificially over-expressing or knocking-out the expression of HIF1 α in fibroblast cells, reprogramming these adult cells as usual, and then determining the extent and efficiency of reprogramming compared to fibroblast cells with native levels of HIF1 α . We believe this work is fundamental for determining how a key molecular factor regulates the generation of patient-specific stem cells for use in future, advanced cell-based therapies in the exciting and emerging field of human regenerative medicine.