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iPS Generation

Description: The iPS Core can generate iPS lines from mouse embryonic fibroblasts (MEFs) or tail tip fibroblasts (TTFs) using either the piggyBac transposase system or lentiviral vectors, both of which are doxycycline inducible and express Oct4, Sox2, Klf4, and c-myc. iPS colonies that form after 1-2 weeks can be picked based on ES like morphology and passaged to establish monoclonal iPS lines. Established iPS lines can then be validated by a number of different assays. The total time required to create iPS lines is approximately 4 weeks, with validation time varying depending on which particular assays are employed. Between 1 and 6 lines will be generated per successful attempt.

Starting Materials: Early passage MEFs (P<4) or TTFs (P1 or P2) are ideal for reprogramming. Cells can be delivered to the iPS Core cryopreserved, but fresh cells that have never been frozen are ideal. Other types of cells may be amenable to reprogramming, and can be attempted using the same reprogramming strategy.

Characterization of iPS Cells: For an additional cost, the iPS Core can validate the pluripotency of iPS cells through a variety of assays including alkaline phosphatase staining, immunocytochemistry for Nanog expression, in-vitro differentiation (embryoid body formation), and in-vivo differentiation (teratoma assay). Preparation of metaphase spreads and karyotype analysis are also available.

Price: \$800 for transformation and generation of at least 1 iPS line, with additional costs depending on the level of validation required, and any additional tissue culture required (e.g. generation of MEFs or TTFs). Please contact the iPS Core for more information.