Feeder-dependent and feeder-independent iPS cell derivation from human and mouse adipose stem cells.

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Public Summary:
Adipose tissue is an abundantly available source of proliferative and multipotent mesenchymal stem cells with promising potential for regenerative therapeutics. We previously demonstrated that both human and mouse adipose-derived stem cells (ASCs) can be reprogrammed into induced pluripotent stem cells (iPSCs) with efficiencies higher than those that have been reported for other cell types. The ASC-derived iPSCs can be generated in a feeder-independent manner, representing a unique model to study reprogramming and an important step toward establishing a safe, clinical grade of cells for therapeutic use. In this study, we provide a detailed protocol for isolation, preparation and transformation of ASCs from fat tissue into mouse iPSCs in feeder-free conditions and human iPSCs using feeder-dependent or feeder/xenobiotic-free processes. This protocol also describes how ASCs can be used as feeder cells for maintenance of other pluripotent stem cells. ASC derivation is rapid and can be completed in <1 week, with mouse and human iPS reprogramming times averaging 1.5 and 2.5 weeks, respectively.

Scientific Abstract:
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