

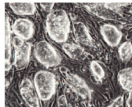
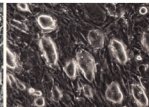
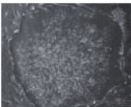
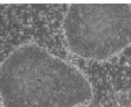
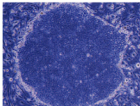
	Mouse			Human	
Pluripotent cell type	ES cells	iPS cells	EpiSC cells	ES cells	iPS cells
					
Origin	Blastocyst	Somatic cells	EpiBLAST	Blastocyst	Somatic cells
Pluripotency state	"Naïve" = ICM like			"Primed" = epiblast like	
Morphology	Small cells, dense colonies			Flat colonies	
Clonogenicity	High			Low	
Growth requirements	LIF/Stat3 signaling			bFGF - Activin/Nodal	
Contribution to chimera	Contributes to all tissues			Does not contribute	
Teratoma formation	Yes			Yes	
Gene targeting by homologous recombination	Very efficient			Very inefficient	
X inactivation	Pre-X inactivation (XaXa)			Post-X inactivation (XiXa)	

Figure 8. Different states of pluripotency. Classical mouse ES cells are derived from the ICM of the blastocyst and are designated as “naïve.” In contrast, EpiSCs are derived from the epiblast of the implanted embryo and are designated as “primed,” implying that these cells are less immature and more differentiated than naïve cells. The differences between the two states of pluripotency are reflected in morphology, clonogenicity (ability to form discrete colonies), signal transduction pathways, their pluripotency as assayed by their ability to contribute to tissues in a chimera or form a teratoma, gene targeting by homologous recombination, and the state of X inactivation. Human ES cells, although also derived from the blastocyst, resemble the primed state by many criteria and differ from the naïve state of pluripotency.