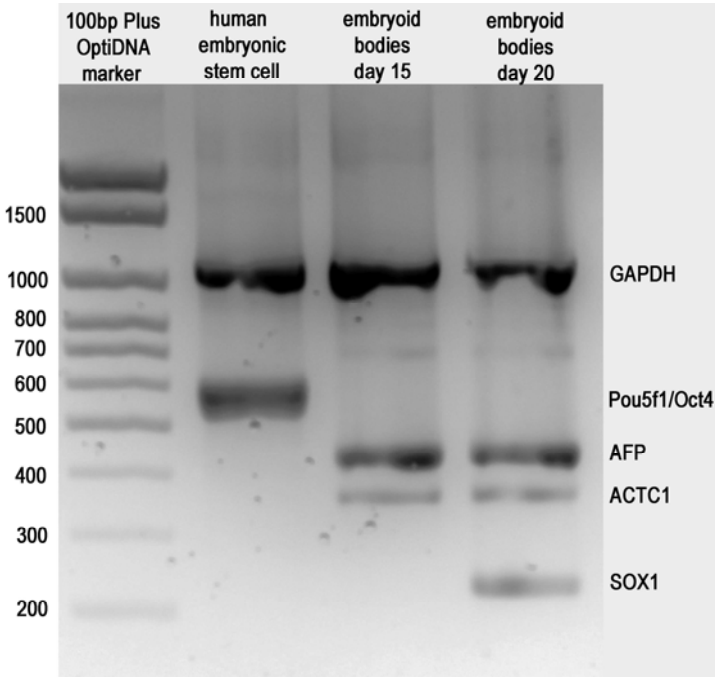
ABM Inc. iPS Characterization Tools

Induced Pluripotent Stem Cells, generally abbreviated as iPS cells or iPSCs, are a type of pluripotent stem cell commonly derived from human somatic cells through genetic modification and integration of specific DNA-transcription factors to reprogram adult human cells to a pluripotent state.

Literature suggests that Induced Pluripotent Stem Cells and natural pluripotent stem cells, like embryonic stems cells, share identical qualities such as the expression of certain stem cell genes and proteins, chromatin methylation patterns, doubling time, embryoid body formation, teratoma formation, viable chimera formation, and potency and differentiability. However, the full extent of their relation to natural pluripotent stem cells is still being assessed. Independent laboratories have established the fact that Sox2, c-myc, Lin28, KLF4, and especially Oct4 and Nanog play essential roles in the induction of pluripotent stem cells.

Tri-Lineage Multiplex PCR Kit

The Human Tri-Lineage Multiplex PCR Kit is intended for use in characterizing human embryonic stem cells (hESCs) and pluripotent human embryonal carcinoma stem cells (hECs). It allows for the simultaneous determination of stem cell pluripotency and differentiation state through a multiplex PCR reaction. This method of characterization is fast, effective, and has less stringent sample volume requirements compared to methods such as immunocytochemistry.



Ordering Information

Product Name	Catalog No.	Description	Packaging Size
HumanTri-Lineage Multiplex PCR Kit	G286	Tri-Lineage Multiplex PCR *Kit consists of PCR Taq Mastermix & Tri-Lineage Primer Mix*	100 reactions

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iPSCs Reporters (StemPorter)

Induced Pluripotent Stem Cells are believed to be identical to natural pluripotent stem cells, such as embryonic stem (ES) cells, in many respects, including the expression of certain stem cell genes and proteins, chromatin methylation patterns, doubling time, embryoid body formation, and teratoma formation. Co-expression or activation of iPSC reprogramming genes are critical genetic events for the maintaince of both ESC and iPSCs, and moniting the expression profile of iPSC reprogramming genes in turn would be suggestive of cell's pluripotent status. Three transcription factors are known to be critical in the maintenance of ESC pluripotency: Oct4, Myc, and Sox2. Oct4 (Pou5f1) has a highly conserved role in maintaining pluripotent cell populations and its expression level dictates ESC fate. Sox2 forms a complex with Oct4 and is essential to regulate other genes required for ESCs.

For this reason, ABM Inc. has developed adenovirus-based transciptional response sensors that are indicative of Oct4, Myc, or Sox2 transcriptional activity. This is achieved by incorporating Oct4, Myc, and Sox2 promoter or a combination of promoter and enhancer upstream a reporter gene such as GFP. With almost 100% gene transduction efficiency in most cell types with adenoviral vector, the plurpotent status can be easily evaluate by the transduction of target cells with an adenoviral Stemsensor. In addition, due to non-integrating nature of adenoviral vector, cells in study will quickly lose adenoviral vector within 5-7 days, and thus cells of interests can be recovered with minimal implications on future assays.

Ordering Information

Product Name	Catalog No.	Description	Packaging Size
Ad-Oct4 EYFP StemPorter (**CMV** Promoter)	000776A	Oct4 EYFP Reporter Adenovirus *ECFP (Cyan) under the control of an Oct4 promoter*	250µl ($1x10^6$pfu/ml)
Ad-Myc ECFP StemPorter (**CMV** Promoter)	000774A	Myc ECFP Reporter Adenovirus *EYFP (Yellow) under the control of a Myc promoter*	250µl ($1x10^6$pfu/ml)

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