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Protein Survey STEM CELL

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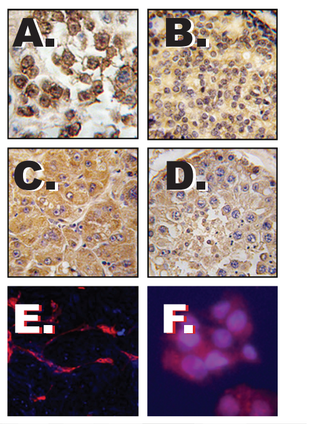
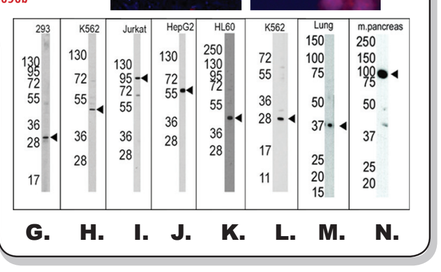
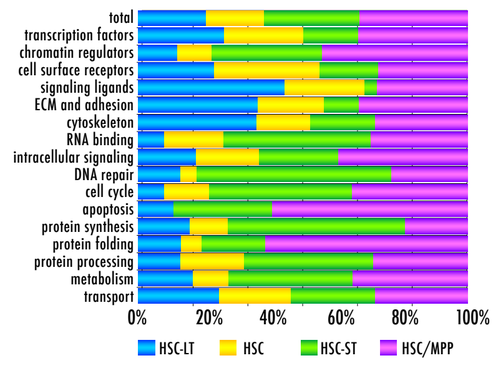
Selected Abgent Products

Figure	Target	Tissue/Cell line	Cat#
A.	NANOG	Human testis	AP1486c
B.	SOX9	Human prostate carcinoma	AP1409a
C.	ALDH1A1, RalDH1	Human hepatocarcinoma	AP1465c
D.	PIWIL1, HIWI	Human testis	AP2731a
E.	Eph4A, SEK, HEK8	Human stem cells	AP7609a
F.	Glypican-3 ,GPC3	Human liver carcinoma (HepG2)	AP6337a
G.	KITLG, cKit ligand	Human kidney (293)	AP1484b
H.	DRAGON, RGMB	Human bone marrow (K562)	AP1421b
I.	TERT, Telomerase	Human T cell leukemia (Jurkat)	AP1410c
J.	SOX9	Human liver carcinoma (HepG2)	AP1409c
K.	LMX1alpha	HL60	AP1426c
L.	LIN28B	Human bone marrow (K562)	AP1485c
M.	SAE1, UBLE1A	Mouse lung tissue lysate	AP2011b
N.	KIT, CD117, SCFR	Mouse pancreas lysate	AP7656b

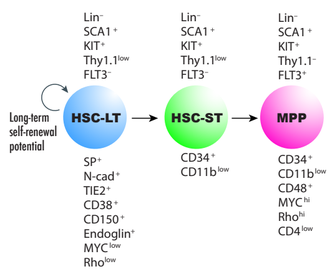




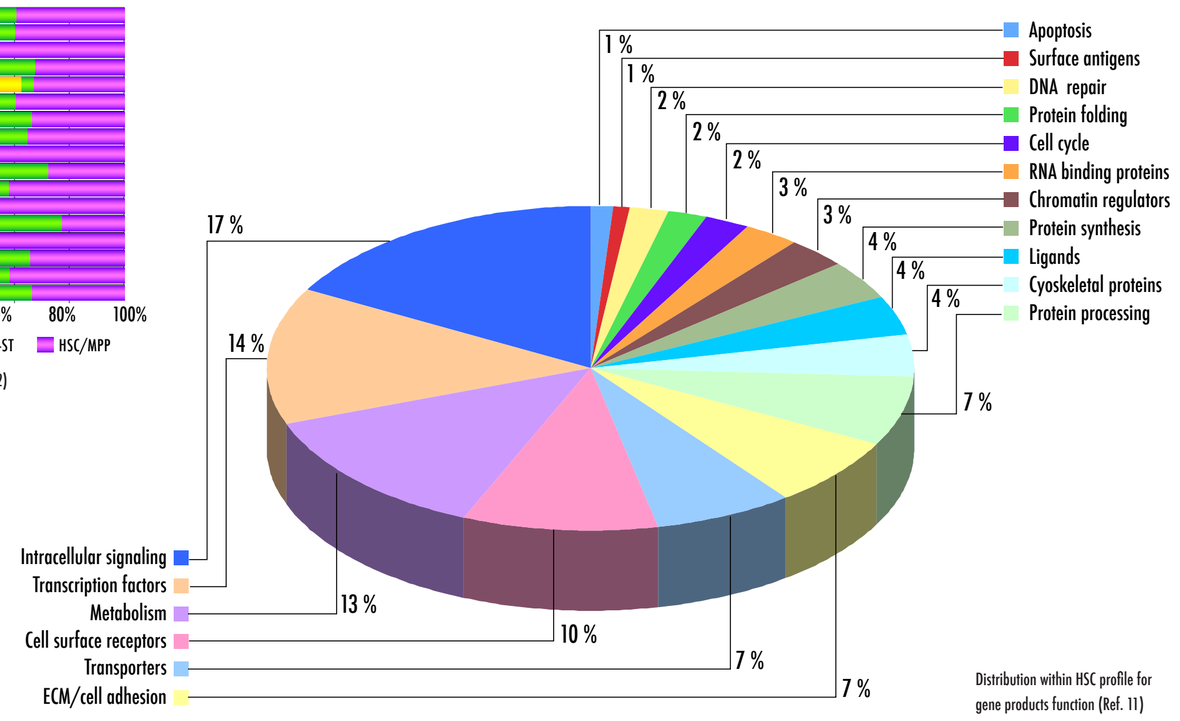
Distribution



Distribution of gene products between HSC subtypes (Ref. 11,12)

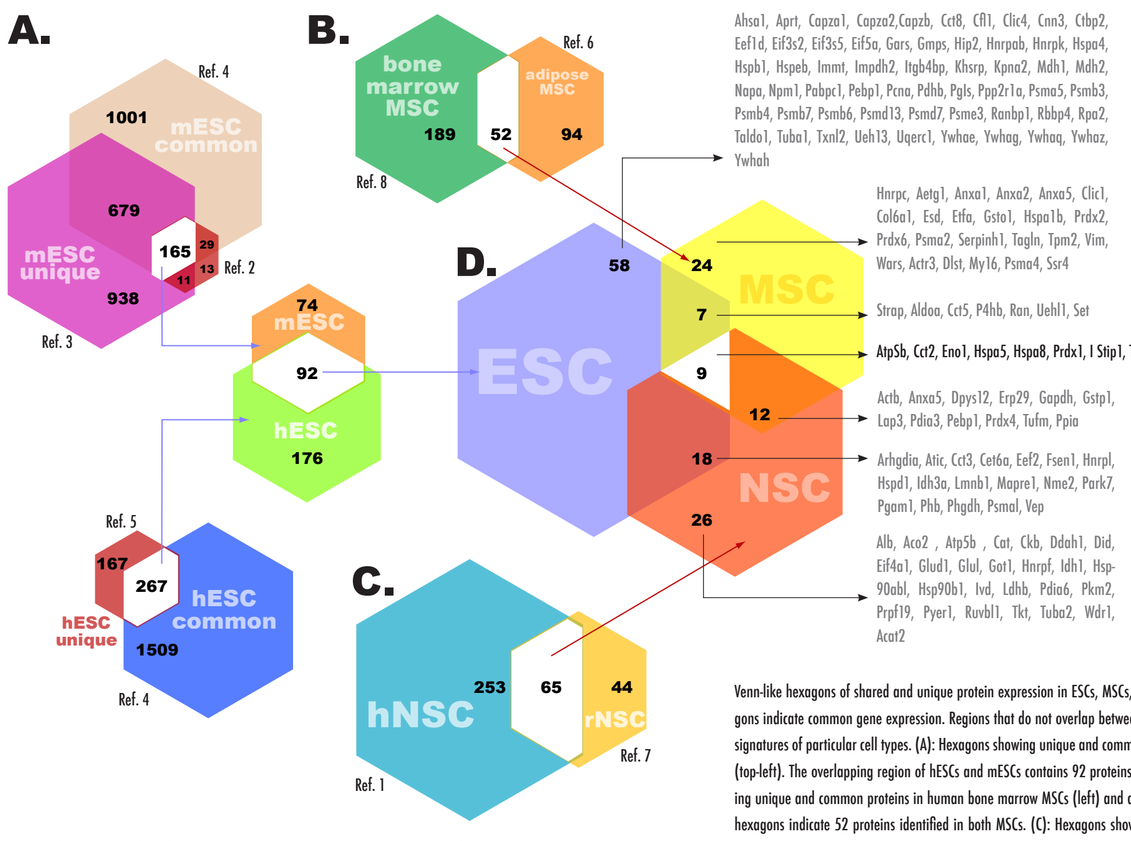


Characteristics of haematopoietic stem cells (Ref. 11,12)



Distribution within HSC profile for gene products function (Ref. 11)

Associations



Ahsa1, Aprt, Capza1, Capza2,Capzb, Cct8, Cfl1, Clic4, Cnn3, Ctbp2, Eef1d, Eif3s2, Eif3s5, Eif5a, Gars, Gmps, Hip2, Hnrpab, Hnrpk, Hspa4, Hspb1, Hspeb, Immt, Impdh2, Itgb4bp, Khsrp, Kpna2, Mdh1, Mdh2, Napa, Npm1, Pabpc1, Pebp1, Pcna, Pdhb, Pgls, Ppp2r1a, Psma5, Psmb3, Psmb4, Psmb7, Psmb6, Psmd13, Psmd7, Psme3, Ranbp1, Rbbp4, Rpa2, Taldo1, Tuba1, Txnl2, Ueh13, Uqerc1, Ywhae, Ywhaq, Ywhaq, Ywhaz, Ywhah

Hnrpc, Aetg1, Anxa1, Anxa2, Anxa5, Clic1, Col6a1, Esd, Etfa, Gsto1, Hspa1b, Prdx2, Prdx6, Psma2, Serpinh1, Tagln, Tpm2, Vim, Wars, Actr3, Dlst, My16, Psma4, Ssr4

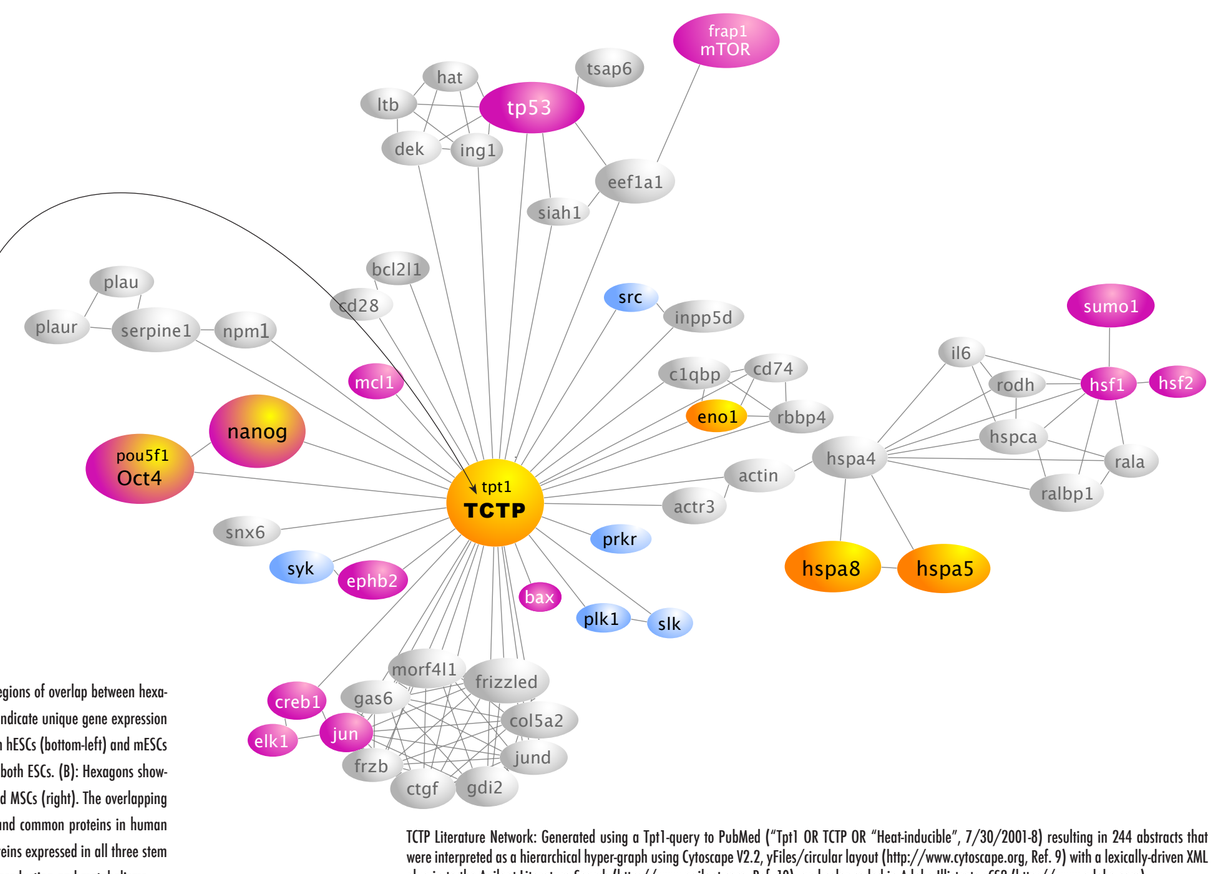
Strap, Aldoa, Cct5, P4hb, Ran, Uehl1, Set

AtpSb, Cct2, Eno1, Hspa5, Hspa8, Prdx1, I Stip1, Tpi1, Tpt1

Actb, Anxa5, Dpys12, Erp29, Gapdh, Gstp1, Lap3, Pdia3, Pebp1, Prdx4, Tufm, Ppia

Arhgdia, Atic, Cct3, Cet6a, Eef2, Fsen1, Hnrpl, Hspd1, Idh3a, Lmnb1, Mapre1, Nme2, Park7, Pgam1, Phb, Phgdh, Psmal, Vep

Alb, Aco2 , Atp5b , Cat, Ckb, Ddah1, Did, Eif4a1, Glud1, Glul, Got1, Hnrpf, Idh1, Hsp-90abl, Hsp90b1, Ivd, Ldhb, Pdia6, Pkm2, Prpf19, Pyer1, Ruvbl1, Tkt, Tuba2, Wdr1, Acat2



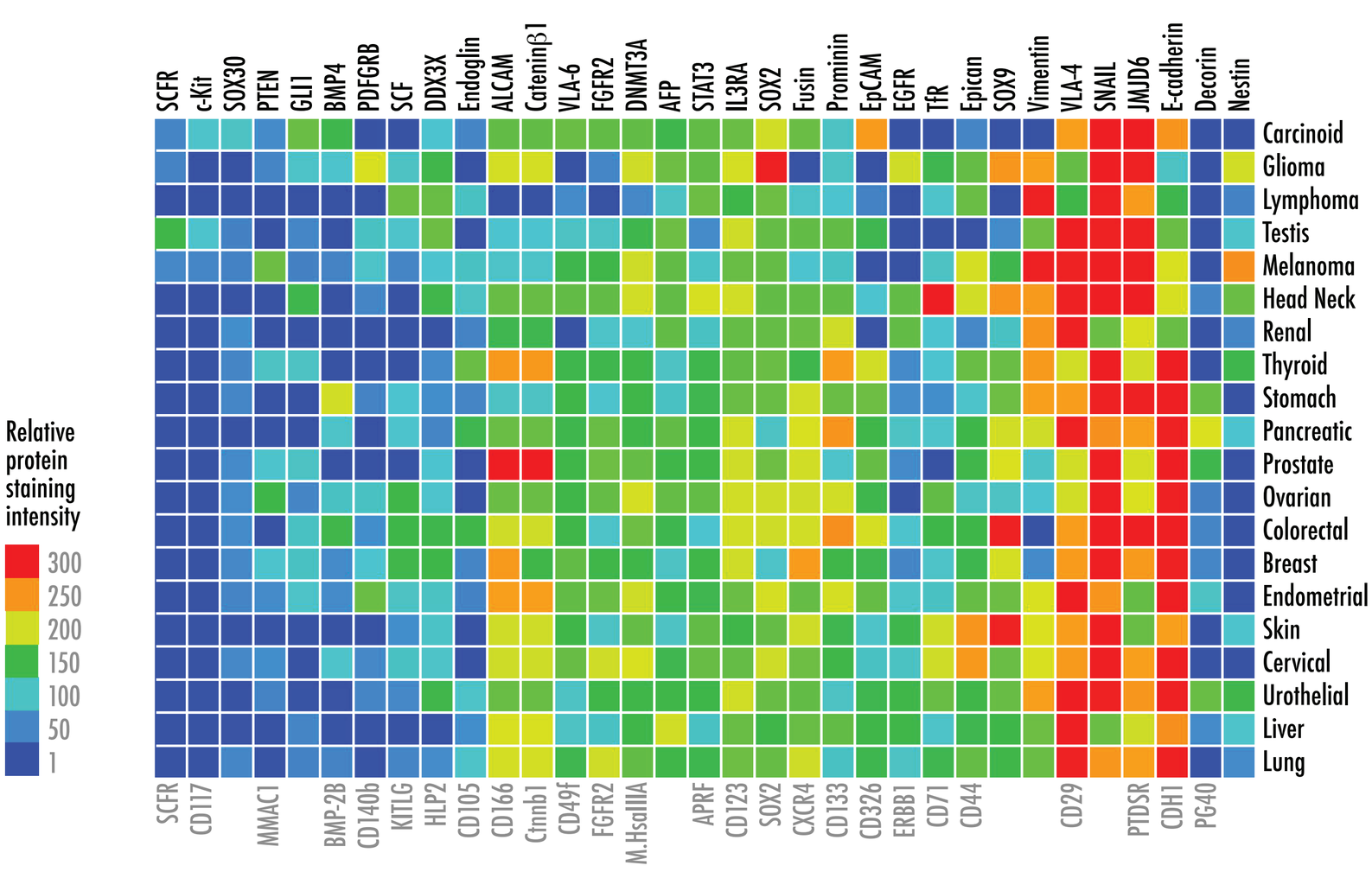
Venn-like hexagons of shared and unique protein expression in ESCs, MSCs, and NSCs. Regions of overlap between hexagons indicate common gene expression. Regions that do not overlap between hexagons indicate unique gene expression signatures of particular cell types. (A): Hexagons showing unique and common proteins in hESCs (bottom-left) and mESCs (top-left). The overlapping region of hESCs and mESCs contains 92 proteins identified in both ESCs. (B): Hexagons showing unique and common proteins in human bone marrow MSCs (left) and adipose-derived MSCs (right). The overlapping hexagons indicate 52 proteins identified in both MSCs. (C): Hexagons showing unique and common proteins in human NSCs (left) and rat NSCs (right). The overlapping hexagons indicate 65 proteins identified in both NSCs. (D): hexagons showing unique and common proteins in ESCs, MSCs, and NSCs. The overlapping hexagons indicate nine proteins expressed in all three stem cells types. The gene symbols of SCs specific and common proteins are indicated on the right. The three SC types (ESCs, MSCs, and NSCs) shared nine proteins identified in proteomics screens, including proteins involved in energy production and metabolisms.

TCTP Literature Network: Generated using a Tpt1-query to PubMed ("Tpt1 OR TCTP OR "Heat-inducible", 7/30/2001-8) resulting in 244 abstracts that were interpreted as a hierarchical hyper-graph using Cytoscape V2.2, yFiles/circular layout (http://www.cytoscape.org, Ref. 9) with a lexically-driven XML plug-in to the Agilent Literature Search (http://www.agilent.com, Ref. 10), and color coded in Adobe Illistrator CS2 (http://www.adobe.com).

Associations

Profiling

500+ additional stem cell Abs at www.abgent.com



An algorithm extracting scored cancer tissue-specific average staining intensity was implemented on data resident at the Human Protein Atlas (www.proteinatlas.org). Data points were then clustered using Statistica V7 (www.statsoft.com): the linkage along both axis was 'weighted pair-group centroid (median)', and distances were 1/ for tissues - '1-Pearson r' and 2/ stem cell markers - 'Euclidean'. The clustered matrix was visualized using MatrixViewer V5 (developed by the PMAP team at the The Burnham Medical Institute, www.burnham.org).

Distribution *of stem cell proteins in cell subtypes and across cellular function*
Associations *of stem cell proteins in major tissue types and among each other*
Profiling *of stem cell markers in cancer tissues via antibodies*

Abbreviations & References

HSC, Haematopoietic stem cells; **HSC-LT**, long-term HSCs; **HSC-ST**, short-term HSCs; **MPP**, multipotential progenitor; **hESC**, human ESC; **mESC**, mouse ESC; **SP**, side-population ability; **Rho**, rhodamine 123; Lin, lineage-negative, Lin; **SCA1**, stem-cell antigen 1; **FLT3**, fms-related tyrosine kinase 3; **N-cad**, N-cadherin; **SCF**, membrane-bound stem-cell factor also known as KIT ligand; **TIE2**, tyrosine kinase receptor 2; **Atp5b**, ATP synthase chain; **Eno1**, Enolase 1; **Tpi1**, Triosephosphate isomerase, **Stip1**, stress-induced-phosphoprotein 1; **Prdx1**, Peroxiredoxin 1; **Cct2**, chaperonin-containing TCP1-subunit 2; **Hspa5**, 78-kDa glucose-regulated protein precursor; **Hspa8**; subunit and Heat shock cognate 71-kDa protein, an unclassifie protein; **Tpt1**, Translationally controlled tumor protein or TCTP; **Oct4**, POU domain-containing transcription factor encoded by Pou5f1 gene; **FRAP1**, Mammalian target of rapamycin mTOR, FKBP12-rapamycin complex-associated protein, **SUMO1**, Small ubiquitin-related modifier 1,Sentrin, Ubiquitin-like protein SMT3C, GAP-modifying protein 1, UBL1, PIC1, GMP1; **MCL1**, nduced myeloid leukemia cell differentiation protein Mcl-1, Bcl-2-related protein EAT/mcl1; **SLK**, Proto-oncogene tyrosine-protein kinase Fyn; **SYK**, spleen tyrosine kinase; **PTEN**, phosphatase and tensin homologue deleted from chromosome 10, **DDX3X**, DEAD (Asp-Glu-Ala-Asp) box polypeptide 3X; **SOX9**, SRY (sex determining region Y)-box 9; **SOX2**, SRY (sex determining region Y)-box 2; **BMP4**, Bone morphogenic protein 4, **AFP**, Alpha-fetoprotein; **TfR**, Transferrin Receptor, CD71.

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