

Supplementary Table 2: Protein identification in different culture conditions using mass spectrometry

P4-hMSCs alone

N	Unused	Total	%Cov	%Cov(50)	%Cov(95)	Accession #	Name of the protein	Peptides(95%)
1	22.23	22.23	34.97854173	9.313304722	8.583690971	gi 47132555	fibronectin 1 isoform 4 preproprotein [Homo sapiens]	11
2	19.02	19.02	87.33528256	12.51830161	11.49341166	gi 48762934	alpha 2 type I collagen [Homo sapiens]	11
3	17.89	17.89	79.91803288	12.36338764	12.36338764	gi 110349772	alpha 1 type I collagen preproprotein [Homo sapiens]	14
4	9.6	9.6	54.35139537	19.21182275	10.67323461	gi 4502027	albumin precursor [Homo sapiens]	4
5	8	8	57.09219575	23.40425551	23.40425551	gi 4504619	insulin-like growth factor binding protein 7 [Homo sapiens]	4
7	4.08	4.08	58.04020166	9.296482056	9.296482056	gi 24307907	plasminogen activator inhibitor type 1, member 2 [Homo sapiens]	2
8	3.92	3.92	19.06377226	2.578018978	1.967435516	gi 66932947	alpha-2-macroglobulin precursor [Homo sapiens]	2
9	3.47	3.47	30.854702	2.991452999	1.025641058	gi 40317626	thrombospondin 1 precursor [Homo sapiens]	1
10	3.4	3.4	25.30303001	4.696969688	4.696969688	gi 11342666	matrix metalloproteinase 2 preproprotein [Homo sapiens]	2

P0-OA alone

N	Unused	Total	%Cov	%Cov(50)	%Cov(95)	Accession #	Name of the protein	Peptides(95%)
1	27.19	27.19	86.01756692	21.15666121	18.88726205	gi 48762934	alpha 2 type I collagen [Homo sapiens]	15
2	11.04	11.04	23.17596525	5.236051604	3.562231734	gi 47132555	fibronectin 1 isoform 4 preproprotein [Homo sapiens]	5
3	9.96	9.96	46.30541801	10.67323461	7.224959135	gi 4502027	albumin precursor [Homo sapiens]	5
4	7.67	7.67	69.74043846	4.98633869	4.98633869	gi 110349772	alpha 1 type I collagen preproprotein [Homo sapiens]	5
6	5.03	5.03	53.03643942	19.43319887	19.43319887	gi 169217813	PREDICTED: hypothetical protein [Homo sapiens]	3
7	4.77	4.77	32.97872245	17.37588644	12.41134778	gi 4504619	insulin-like growth factor binding protein 7 [Homo sapiens]	2
8	4.33	4.33	18.77394617	2.159526385	1.671891287	gi 24430141	fibrillin 1 precursor [Homo sapiens]	2
9	4	4	46.21409774	8.877284825	8.877284825	gi 144226251	chitinase 3-like 1 [Homo sapiens]	2
10	3.6	3.6	36.9168371	7.302231342	7.302231342	gi 9665262	EGF-containing fibulin-like extracellular matrix protein 1 precursor [Homo sapiens]	3

P1-OA alone

N	Unused	Total	%Cov	%Cov(50)	%Cov(95)	Accession #	Name of the protein	Peptides(95%)
1	23.19	23.19	82.78688788	17.89617538	13.45628351	gi 110349772	alpha 1 type I collagen preproprotein [Homo sapiens]	14
2	20.63	20.63	76.57393813	16.83748215	14.20204937	gi 48762934	alpha 2 type I collagen [Homo sapiens]	12
3	15.87	15.87	30.84376156	6.136455387	4.36011292	gi 47132557	fibronectin 1 isoform 1 preproprotein [Homo sapiens]	7
5	8.45	8.45	25.04353821	2.995472029	2.36851275	gi 24430141	fibrillin 1 precursor [Homo sapiens]	4
6	6.27	6.27	47.85100222	6.303724647	6.303724647	gi 4557871	transferrin [Homo sapiens]	3
8	5.54	5.54	71.75324559	16.23376608	9.740259498	gi 5901956	follicle-stimulating hormone receptor-like 1 precursor [Homo sapiens]	2
10	4.04	4.04	45.03546059	12.41134778	12.41134778	gi 4504619	insulin-like growth factor binding protein 7 [Homo sapiens]	2
12	4	4	14.44261372	2.251510136	2.251510136	gi 4557733	latent transforming growth factor beta binding protein 2 [Homo sapiens]	2
13	3.65	3.65	33.8516742	7.296650857	1.67464111	gi 5453834	periostin, osteoblast specific factor [Homo sapiens]	1
14	3.34	3.34	49.39271212	19.43319887	7.28744939	gi 169217813	PREDICTED: hypothetical protein [Homo sapiens]	2

P0 OA-P4 hMSC co-culture

N	Unused	Total	%Cov	%Cov(50)	%Cov(95)	Accession #	Name of the protein	Peptides(95%)
1	41.37	41.37	86.45680547	31.47877157	26.93997025	gi 48762934	alpha 2 type I collagen [Homo sapiens]	23
2	28.13	28.13	77.868855	16.87158495	16.87158495	gi 110349772	alpha 1 type I collagen preproprotein [Homo sapiens]	19
3	16.43	16.43	33.60514939	7.811158895	5.493562296	gi 47132555	fibronectin 1 isoform 4 preproprotein [Homo sapiens]	7
5	7.73	7.73	68.72852445	29.20962274	18.21305901	gi 62243068	insulin-like growth factor binding protein 3 isoform b precursor [Homo sapiens]	3
5	0	7.73	59.93266106	28.61952782	17.84511805	gi 62243248	insulin-like growth factor binding protein 3 isoform a precursor [Homo sapiens]	3
6	7.61	7.61	41.54351354	11.16584539	5.418719351	gi 4502027	albumin precursor [Homo sapiens]	3
7	6.49	6.49	39.94082808	16.86390489	13.60946745	gi 4505047	lumican precursor [Homo sapiens]	3
8	5.72	5.72	74.87922907	34.78260934	17.87439585	gi 4507509	tissue inhibitor of metalloproteinase 1 precursor [Homo sapiens]	2
9	4.87	4.87	29.0780127	18.4397161	12.41134778	gi 4504619	insulin-like growth factor binding protein 7 [Homo sapiens]	2
11	4.37	4.37	22.18739092	1.706722379	1.393242739	gi 24430141	fibrillin 1 precursor [Homo sapiens]	3
12	4	4	43.45991611	8.227848262	8.227848262	gi 32483410	vitamin D-binding protein precursor [Homo sapiens]	3
14	3.77	3.77	45.3441292	19.43319887	12.14574873	gi 169217813	PREDICTED: hypothetical protein [Homo sapiens]	2
15	3.4	3.41	69.30422783	2.864938602	2.864938602	gi 4502951	collagen, type III, alpha 1 preproprotein [Homo sapiens]	2
16	3.15	3.15	38.79310489	4.956896603	2.58620698	gi 4502261	serine (or cysteine) proteinase inhibitor, clade C (antithrombin), member 1 [Homo sapiens]	1
17	2.8	2.8	17.16738194	4.72103022	2.145922743	gi 62414289	vimentin [Homo sapiens]	1
18	2.49	2.49	15.27093649	5.090311915	3.776682913	gi 4501989	alpha-fetoprotein precursor [Homo sapiens]	4
34	1.4	1.4	69.04761791	11.90476194	11.90476194	gi 28173554	histone cluster 3, H2bb [Homo sapiens]	1
	0	1.4	30.95238209	11.90476194	11.90476194	gi 4504259	histone cluster 1, H2bl [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 4504277	histone cluster 2, H2be [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 4504271	histone cluster 1, H2bi [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 4504265	histone cluster 1, H2bf [Homo sapiens]	1
	0	1.4	43.65079403	11.90476194	11.90476194	gi 4504263	histone cluster 1, H2bm [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 4504257	histone cluster 1, H2bg [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 21396484	histone cluster 1, H2be [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 21166389	histone cluster 1, H2bc [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 20336754	histone cluster 1, H2bj [Homo sapiens]	1
	0	1.4	34.92063582	11.90476194	11.90476194	gi 20336752	histone cluster 1, H2bd [Homo sapiens]	1
	0	1.4	42.06349254	11.90476194	11.90476194	gi 18105048	histone cluster 1, H2bk [Homo sapiens]	1
	0	1.4	32.53968358	11.90476194	11.90476194	gi 10800140	histone cluster 1, H2bb [Homo sapiens]	1
	0	1.4	34.92063582	11.90476194	11.90476194	gi 10800138	histone cluster 1, H2bd [Homo sapiens]	1
	0	1.4	20.6349209	11.90476194	11.90476194	gi 66912162	histone cluster 2, H2bf [Homo sapiens]	1
	0	1.4	20.6349209	11.90476194	11.90476194	gi 4504269	histone cluster 1, H2bh [Homo sapiens]	1
	0	1.4	20.6349209	11.90476194	11.90476194	gi 4504261	histone cluster 1, H2bn [Homo sapiens]	1
	0	1.4	20.6349209	11.90476194	11.90476194	gi 16306566	histone cluster 1, H2bo [Homo sapiens]	1
21	2.17	2.17	88.46153617	21.53846174	6.923077255	gi 4504249	histone cluster 1, H2am [Homo sapiens]	1
	0	2.17	88.46153617	21.53846174	6.923077255	gi 4504243	histone cluster 1, H2al [Homo sapiens]	1

0	2.17	88.46153617	21.53846174	6.923077255	gi 4504241	histone cluster 1, H2ak [Homo sapiens]	1
0	2.17	88.46153617	21.53846174	6.923077255	gi 4504239	histone cluster 1, H2ai [Homo sapiens]	1
0	2.17	89.84375	21.875	7.03125	gi 18105045	histone cluster 1, H2ah [Homo sapiens]	1
0	2.17	89.84375	21.875	7.03125	gi 10800144	histone cluster 1, H2aj [Homo sapiens]	1
0	2.17	88.46153617	21.53846174	6.923077255	gi 10800132	histone cluster 1, H2ag [Homo sapiens]	1
0	2.17	69.99999881	21.53846174	6.923077255	gi 4504251	histone cluster 2, H2aa3 [Homo sapiens]	1
0	2.17	86.92307472	21.53846174	6.923077255	gi 28195394	histone cluster 2, H2ab [Homo sapiens]	1
0	2.17	70.54263353	21.70542628	6.976744533	gi 24638446	histone cluster 2, H2ac [Homo sapiens]	1
0	2.17	69.23077106	21.53846174	6.923077255	gi 10800130	histone cluster 1, H2ad [Homo sapiens]	1
0	2.17	69.99999881	21.53846174	6.923077255	gi 106775678	histone cluster 2, H2aa4 [Homo sapiens]	1
0	2.17	79.23076749	21.53846174	6.923077255	gi 4504245	histone cluster 1, H2ac [Homo sapiens]	1
0	2.17	73.64341021	21.70542628	6.976744533	gi 29553970	H2A histone family, member J [Homo sapiens]	1
0	2.17	90.83969593	21.37404531	6.870228797	gi 25092737	histone cluster 1, H2aa [Homo sapiens]	1
0	2.17	66.15384817	21.53846174	6.923077255	gi 19557656	histone cluster 1, H2ab [Homo sapiens]	1
0	2.17	66.15384817	21.53846174	6.923077255	gi 10645195	histone cluster 1, H2ae [Homo sapiens]	1
0	2.17	62.2377634	19.58041936	6.293706596	gi 4504253	H2A histone family, member X [Homo sapiens]	1
0	2.17	56.92307949	21.53846174	6.923077255	gi 15617199	histone cluster 3, H2a [Homo sapiens]	1
0	1.4	34.88371968	5.232558027	5.232558027	gi 113425815	PREDICTED: similar to Histone H2AV (H2A.F/Z) [Homo sapiens]	1
0	1.4	41.86046422	5.232558027	5.232558027	gi 169209156	PREDICTED: similar to Histone H2AV (H2A.F/Z) [Homo sapiens]	1
0	1.4	54.6875	7.03125	7.03125	gi 6912616	H2A histone family, member V isoform 1 [Homo sapiens]	1
0	1.4	43.75	7.03125	7.03125	gi 4504255	H2A histone family, member Z [Homo sapiens]	1
0	1.4	61.40350699	7.894736528	7.894736528	gi 20357599	H2A histone family, member V isoform 2 [Homo sapiens]	1
0	1.4	80.30303121	13.63636404	13.63636404	gi 41406069	H2A histone family, member V isoform 4 [Homo sapiens]	1
0	1.4	21.09375	7.03125	7.03125	gi 41205618	PREDICTED: similar to Histone H2AV (H2A.F/Z) [Homo sapiens]	1

P1 OA-P4 hMSC co-culture

N	Unused	Total	%Cov	%Cov(50)	%Cov(95)	Accession #	Name of the protein	Peptides(95%)
1	72.18	72.18	92.75256395	51.46412849	43.92386675	gi 48762934	alpha 2 type I collagen [Homo sapiens]	47
2	64.11	64.11	91.12021923	47.88251221	37.70491779	gi 110349772	alpha 1 type I collagen preproprotein [Homo sapiens]	46
3	51.28	51.28	45.3078568	20.33970207	19.32059377	gi 16933542	fibronectin 1 isoform 3 preproprotein [Homo sapiens]	25
4	28.19	28.19	31.87042773	9.961685538	7.105538249	gi 24430141	fibrillin 1 precursor [Homo sapiens]	12
5	14.9	14.9	34.92822945	15.66985697	11.48325354	gi 5453834	periostin, osteoblast specific factor [Homo sapiens]	7
6	14.65	14.65	79.18424606	24.89451468	19.5499301	gi 126352446	elastin isoform d [Homo sapiens]	7
7	12.92	12.92	54.4554472	35.64356565	25.08250773	gi 4507171	secreted protein, acidic, cysteine-rich [Homo sapiens]	6
9	11.69	11.69	23.50356877	6.699615717	4.173531011	gi 4557733	latent transforming growth factor beta binding protein 2 [Homo sapiens]	5
10	11.52	11.52	56.38297796	38.65248263	38.65248263	gi 4504619	insulin-like growth factor binding protein 7 [Homo sapiens]	6
11	7.52	7.52	72.94685841	50.72463751	27.53623128	gi 4507509	tissue inhibitor of metalloproteinase 1 precursor [Homo sapiens]	3
12	6.77	6.77	35.30377746	6.732348353	4.761904851	gi 4502027	albumin precursor [Homo sapiens]	3
13	6.18	6.18	44.41260695	13.18051517	13.18051517	gi 4503123	connective tissue growth factor [Homo sapiens]	3

14	6	6	27.69230902	4.358974472	4.358974472	gi 40317626	thrombospondin 1 precursor [Homo sapiens]	3
15	5.75	5.75	80.32021523	5.470313504	2.868579142	gi 89363017	alpha 2 type V collagen preproprotein [Homo sapiens]	2
16	5.32	5.32	44.41260695	7.879655808	4.29799445	gi 4557871	transferrin [Homo sapiens]	2
17	4.91	4.91	46.75324559	18.50649416	12.33766228	gi 5901956	folliculin-like 1 precursor [Homo sapiens]	2
18	4.72	4.72	62.54295707	17.18213111	14.08934742	gi 62243068	insulin-like growth factor binding protein 3 isoform b precursor [Homo sapiens]	2
19	4.53	4.53	55.19765615	6.881405413	5.124450848	gi 4507467	transforming growth factor, beta-induced, 68kDa [Homo sapiens]	2
21	4.12	4.12	69.80413198	2.121871524	2.121871524	gi 89276751	alpha 1 type V collagen preproprotein [Homo sapiens]	2
22	4.12	4.12	77.76262164	4.297408089	0.818553846	gi 4502951	collagen, type III, alpha 1 preproprotein [Homo sapiens]	2
23	4.12	4.12	54.65586782	19.43319887	19.43319887	gi 169217813	PREDICTED: hypothetical protein [Homo sapiens]	3
24	4.11	4.11	33.43195319	9.467455745	9.467455745	gi 4505047	lumican precursor [Homo sapiens]	2
25	4.02	4.02	16.24834836	4.88771461	4.88771461	gi 40217843	cartilage oligomeric matrix protein precursor [Homo sapiens]	2
27	4	4	44.09090877	19.54545528	19.54545528	gi 4507511	TIMP metalloproteinase inhibitor 2 precursor [Homo sapiens]	2
28	3.52	3.52	37.85310686	12.71186471	12.71186471	gi 4503053	hyaluronan and proteoglycan link protein 1 [Homo sapiens]	2
29	3.44	3.44	30.09950221	6.467662007	6.467662007	gi 10835159	plasminogen activator inhibitor-1 [Homo sapiens]	2

Key	
Category	Definition
N	The rank of the specified protein relative to all other proteins in the list of detected proteins.
Unused	A measure of the protein confidence for a detected protein, calculated from the peptide confidence for peptides from spectra that have not been completely “used” by higher scoring proteins
Total	A measure of the total amount of evidence for a detected protein. The Total ProtScore does not indicate the percent confidence for the identification of a protein.
%Cov	The percentage of matching amino acids from identified peptides having Confidence greater than 0 divided by the total number of amino acids in the sequence.
%Cov(50)	The percentage of matching amino acids from identified peptides having Confidence greater than or equal to 50 divided by the total number of amino acids in the sequence.
%Cov(95)	The percentage of matching amino acids from identified peptides having Confidence greater than or equal to 95 divided by the total number of amino acids in the sequence.