

Supplementary Table S1. Details on the donors and samples

					Death to retrieval of tissue (h)	Death to cell seeding (h)
	Specimen	Gender	Age	Cause of death		
OM 34	S01	Male	63	Haemorrhagic shock	25.0	48.0
OM 47	S02	F	51	Brain oedema	44.1	71.1
OM 52	S03	F	76	Haemorrhagic shock	44.0	73.0
OM 65	S04	F	81	Cardiorespiratory failure	11.3	41.3
OM 66	S05	M	73	Heart failure	43.0	93.0
OM 67	S06	F	55	Septic shock	23.8	29.8
OM68	S07	M	85	Heart failure	9.3	86.3
OM 69	S08	F	84	Heart failure	17.3	46.3
Average			71.0		27.2	61.1
SD			13.2		14.7	22.9

Supplementary Table S2. Genes and primers used for RT-qPCR

Gene name, Gene symbol	Forward primer	Reverse primer	Size (bp)
Housekeeping genes			
Hypoxanthine phosphoribosyltransferase 1, <i>HPRT1</i>	TCTTTGCTGACCTGCTGGATTAC	GTCTGCATTGTTTTGCCAGTGTC	214
Ribosomal protein L32, <i>RPL32</i>	CTCAGACCCCTTGTGAAGCC	TTGCTTCCATAACCAATGTTGG	179
Stemness markers			
SRY-box transcription factor 2, <i>SOX2</i>	GCTAGTCTCCAAGCGACGAAA	GCCTCTCCTTGAAAAATATTGGC	137
Kruppel like factor 4, <i>KLF4</i>	CCACACTTGTGATTACGCGG	GAATTTCCATCCACAGCCGT	127
Tumour protein p63, <i>dNp63a</i>	TATCCGCATGCAGGACTCG	GAGCCAGAAGAAAGGACAGCAG	127
ATP binding cassette subfamily G member 2 (Junior blood group), <i>ABCG2</i>	GAGCTACAACCTGGCTTAGACTCAA	TGATTGTTTCGTCCTGCTTAGAC	85
Proliferation markers			
Marker of proliferation Ki67, <i>MKI67</i>	CTTTGGGTGCGACTTGACG	GTCGACCCCGCTCCTTTT	199
Proliferating cell nuclear antigen, <i>PCNA</i>	TCTGCAAGTGGAGAACTTGGAA	TTCAGGTACCTCAGTGCAAAAAGTTAG	131
Differentiation markers			
Keratin 3, <i>KRT3</i>	GGATGTGGACAGTGCCTATATGAA	AGCACCACAGATGTGTCACTGAT	144
Keratin 7, <i>KRT7</i>	ATGGAGTGGGAGCCGTGAA	AGCCTTCAGGAGCCCAGG	146
Keratin 8, <i>KRT8</i>	CGAGATCGCCACCTACAGGA	AGCTCAGACCACCTGCATAGC	116
Keratin 12, <i>KRT12</i>	GGAGATCGAGCTACAGTCCCA	TCCAGGTTGCTGATGAGCTG	120
Keratin 13, <i>KRT13</i>	GAAGATCCGTGACTGGCACC	TCCAGGATGACCCGTTGT	135
Keratin 14, <i>KRT14</i>	TCTCCTCTGGATCGCAGTCA	GCCTCAGTTCTTGGTGCGA	131

Supplementary Table S3. Results on cell growth and viability

Sample	P1A	COM		COM + 5 % Glycerol		COM + 10 % Glycerol		COM + 10 % DMSO	
		Confluence	Viability	Confluence	Viability	Confluence	Viability	Confluence	Viability
S01	34	NR	NR	NR	NR	NR	NR	NR	NR
S06	67	NR	NR	22	79	27	69	22	52
S08	68	NR	NR	NR	NR	NR	NR	NR	NR
S08	69	NR	NR	18	86	NR	NR	21	76
S10	68	NR	NR	NR	NR	NR	NR	NR	NR
	Mean	NR	NR	20,0	82,5	27,0	69,0	21,5	64,0
	SD	NR	NR	2,83	4,95	NR	NR	0,71	16,97

Sample	P2B	COM		COM + 5 % Glycerol		COM + 10 % Glycerol		COM + 10 % DMSO	
		Confluence	Viability	Confluence	Viability	Confluence	Viability	Confluence	Viability
S02	47	7	NA	NA	NA	NA	NA	NA	NA
S03	52	16	94	12	60,9	16	96,25	16	97,14
S04	65	13	89,44	10	81,8	8	90,25	8	81,94
S05	66	16	77,53	12	83,9	12	63,8	12	83,73
S06	67	15	78,22	10	58,73	15	60,14	10	55,97
S09	32	NA	NA	17	91,8	17	90	17	91,01
S10	68	NA	NA	21	61	21	63	NA	NA
	Mean	13,4	84,8	13,7	73,0	14,8	77,2	12,6	82,0
	SD	3,78	8,21	4,41	14,45	4,45	16,55	3,85	15,74

NR... No sufficient confluence
 NA... Not analysed

Viability after thawing (P2B) (%)

	COM + 5 % Gly	COM + 10 % Gly	COM + 10 % DMSO
S02	NA	NA	NA
S03	60,9	96,25	97,14
S04	81,8	90,25	81,94
S05	83,9	63,8	83,73
S06	58,73	60,14	55,97
S10	61	63	NA
	69,3	74,7	79,7
	12,46	17,13	17,21

All CPA together

	Confluence reached at (number of days)		Viability (when passaged) (%)	
	P1A primary COM + CPA	P2B cultured COM + CPA	P1A primary COM + CPA	P2B cultured COM + CPA
	22	12	79	60,9
	18	10	86	81,8
	27	12	69	83,9
	22	10	52	58,73
	21	17	76	91,8
		21		61
		16		96,25
		8		90,25
		12		63,8
		15		60,14
		17		90
		21		63
		16		97,14
		8		81,94
		12		83,73
		10		55,97
		17		91,01
Mean	22,0	13,8	72,4	77,14
SD	3,24	4,10	12,93	14,60

Supplementary Table S4. A mixed-effects model summary of cell growth rate in P1A and P2B OMECs

Linear mixed model fit by REML. t-Tests use the Satterthwaite's method

Formula: Value ~ Group + (1 | Donor)

REML criterion at convergence: 118.8

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.00013	-0.68981	-0.00525	0.55368	1.89093

Random effects:

Groups	Name	Variance	Std.Dev.
Donor	(Intercept)	25.419	5.042
	Residual	3.457	1.859

Number of obs: 27, groups: Donor, 8

Fixed effects:

	Estimate	Std. Error	df	t value	Pr(> t)	
(Intercept)	15.115	2.000	8.846	7.558	3.82e-05	***
StorageCOM_10GLY	-2.144	1.234	15.052	-1.738	0.103	
StorageCOM_5GLY	-3.311	1.234	15.052	-2.684	0.017	*
StorageCOM_DMSO	-3.137	1.259	14.901	-2.491	0.025	*
StorageP1A	8.688	1.585	16.207	5.481	4.81e-05	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:

	(Intr)	SCOM_1	SCOM_5	SCOM_D
StCOM_10GLY	-0.335			
StrCOM_5GLY	-0.335	0.621		
StrCOM_DMSO	-0.312	0.575	0.575	
StorageP1A	-0.298	0.429	0.429	0.419

Type III Analysis of Variance Table with Satterthwaite's method

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
Storage	244.81	61.203	4	15.104	17.702	1.437e-05 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Pairwise comparisons

```
posthoc <- emmeans(model, pairwise ~ Storage)
```

```
summary(posthoc)
```

```
$emmeans
```

Storage	emmean	SE	df	lower.CL	upper.CL
COM	15.1	2.00	9.53	10.62	19.6
COM_10GLY	13.0	1.97	8.96	8.51	17.4
COM_5GLY	11.8	1.97	8.96	7.35	16.3
COM_DMSO	12.0	2.01	9.59	7.48	16.5
P1A	23.8	2.17	11.77	19.07	28.5

Degrees-of-freedom method: kenward-roger

Confidence level used: 0.95

\$contrasts

contrast	estimate	SE	df	t.ratio	p.value
COM - COM_10GLY	2.144	1.24	15.6	1.724	0.4483
COM - COM_5GLY	3.311	1.24	15.6	2.662	0.1061
COM - COM_DMSO	3.137	1.27	15.5	2.476	0.1472
COM - P1A	-8.688	1.62	16.7	-5.364	0.0005
COM_10GLY - COM_5GLY	1.167	1.07	15.0	1.087	0.8105
COM_10GLY - COM_DMSO	0.993	1.15	15.1	0.863	0.9060
COM_10GLY - P1A	-10.832	1.57	16.7	-6.910	<.0001
COM_5GLY - COM_DMSO	-0.174	1.15	15.1	-0.151	0.9999
COM_5GLY - P1A	-11.999	1.57	16.7	-7.654	<.0001
COM_DMSO - P1A	-11.825	1.59	16.5	-7.453	<.0001

Degrees-of-freedom method: kenward-roger

P value adjustment: tukey method for comparing a family of 5 estimates

Supplementary Table S5. A mixed-effects model summary of cell viability in P1A and P2B OMECs

Linear mixed model fit by REML. t-Tests use the Satterthwaite's method

Formula: Value ~ Storage + (1 | Donor)

REML criterion at convergence: 173.8

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7779	-0.4482	0.1179	0.5270	1.2190

Random effects:

Groups	Name	Variance	Std.Dev.
Donor	(Intercept)	94.66	9.729
Residual		107.91	10.388

Number of obs: 26, groups: Donor, 7

Fixed effects:

	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	85.436	6.609	18.213	12.927	1.29e-10
StorageCOM_10GLY	-8.043	6.884	16.212	-1.168	0.2596
StorageCOM_5GLY	-12.261	6.884	16.212	-1.781	0.0936
StorageCOM_DMSO	-4.986	7.061	15.848	-0.706	0.4903
StorageP1A	-5.882	8.152	19.983	-0.721	0.4790

(Intercept) ***

StorageCOM_10GLY

StorageCOM_5GLY .

StorageCOM_DMSO

StorageP1A

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:

	(Intr)	SCOM_1	SCOM_5	SCOM_D
StCOM_10GLY	-0.642			
StrCOM_5GLY	-0.642	0.620		
StrCOM_DMSO	-0.604	0.582	0.582	
StorageP1A	-0.581	0.491	0.491	0.474

Type III Analysis of Variance Table with Satterthwaite's method

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
Storage	367.61	91.903	4	17.197	0.8517	0.5119

Pairwise comparisons

```
posthoc <- emmeans(model, pairwise ~ Storage)
```

```
summary(posthoc)
```

```
$emmeans
```

Storage	emmean	SE	df	lower.CL	upper.CL
COM	85.4	6.70	18.0	71.4	99.5
COM_10GLY	77.4	5.76	13.9	65.0	89.7
COM_5GLY	73.2	5.76	13.9	60.8	85.5
COM_DMSO	80.4	6.17	15.8	67.4	93.5
P1A	79.6	7.25	15.3	64.1	95.0

Degrees-of-freedom method: kenward-roger

Confidence level used: 0.95

\$contrasts

contrast	estimate	SE	df	t.ratio	p.value
COM - COM_10GLY	8.043	6.95	15.8	1.157	0.7746
COM - COM_5GLY	12.261	6.95	15.8	1.764	0.4264
COM - COM_DMSO	4.986	7.09	15.5	0.703	0.9528
COM - P1A	5.882	8.60	19.9	0.684	0.9577
COM_10GLY - COM_5GLY	4.218	6.00	15.2	0.703	0.9526
COM_10GLY - COM_DMSO	-3.056	6.42	15.6	-0.476	0.9885
COM_10GLY - P1A	-2.161	8.18	20.6	-0.264	0.9988
COM_5GLY - COM_DMSO	-7.275	6.42	15.6	-1.134	0.7868
COM_5GLY - P1A	-6.379	8.18	20.6	-0.780	0.9336
COM_DMSO - P1A	0.895	8.34	20.3	0.107	1.0000

Degrees-of-freedom method: kenward-roger

P value adjustment: tukey method for comparing a family of 5 estimates