

図1: 再生軟骨組織の肉眼所見

移植時

8 週

24 週

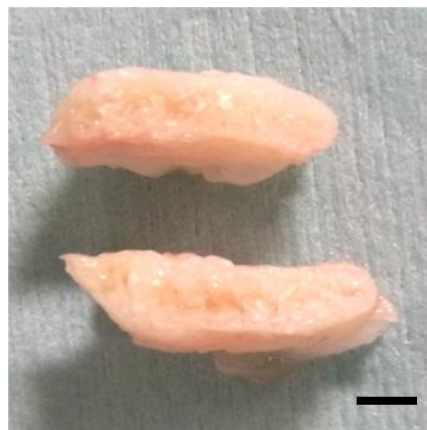
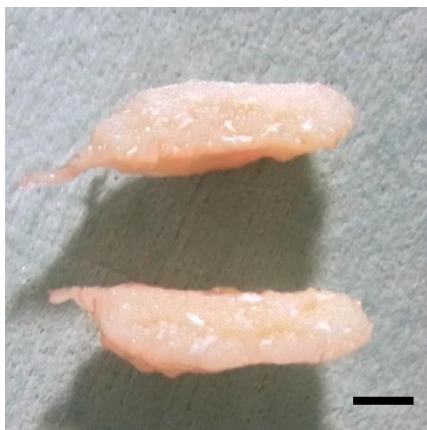
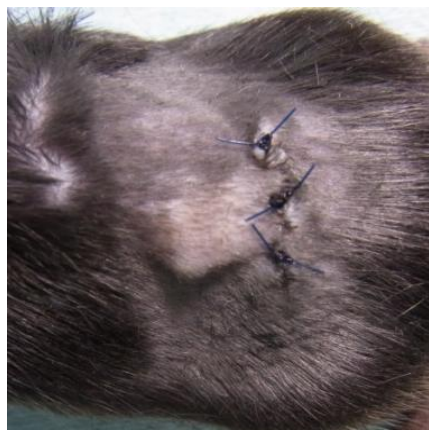
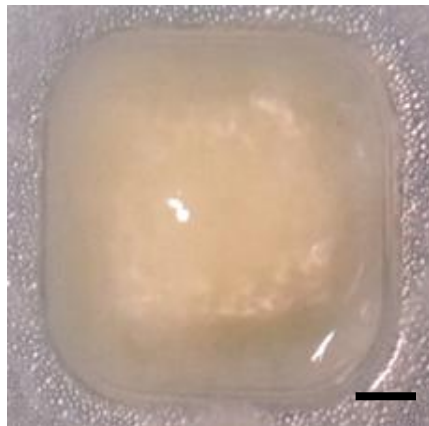


図2: 再生軟骨組織の組織学的評価

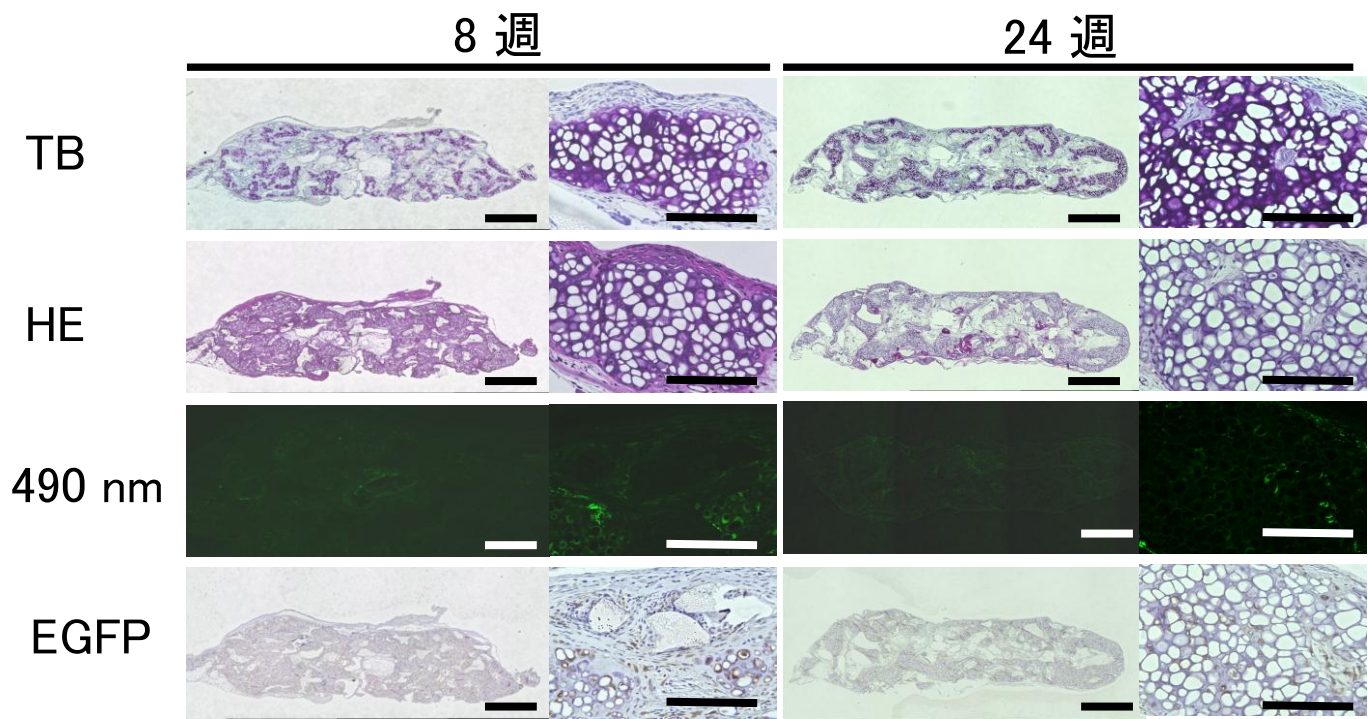


図3: 主要臓器における軟骨細胞の局在検討

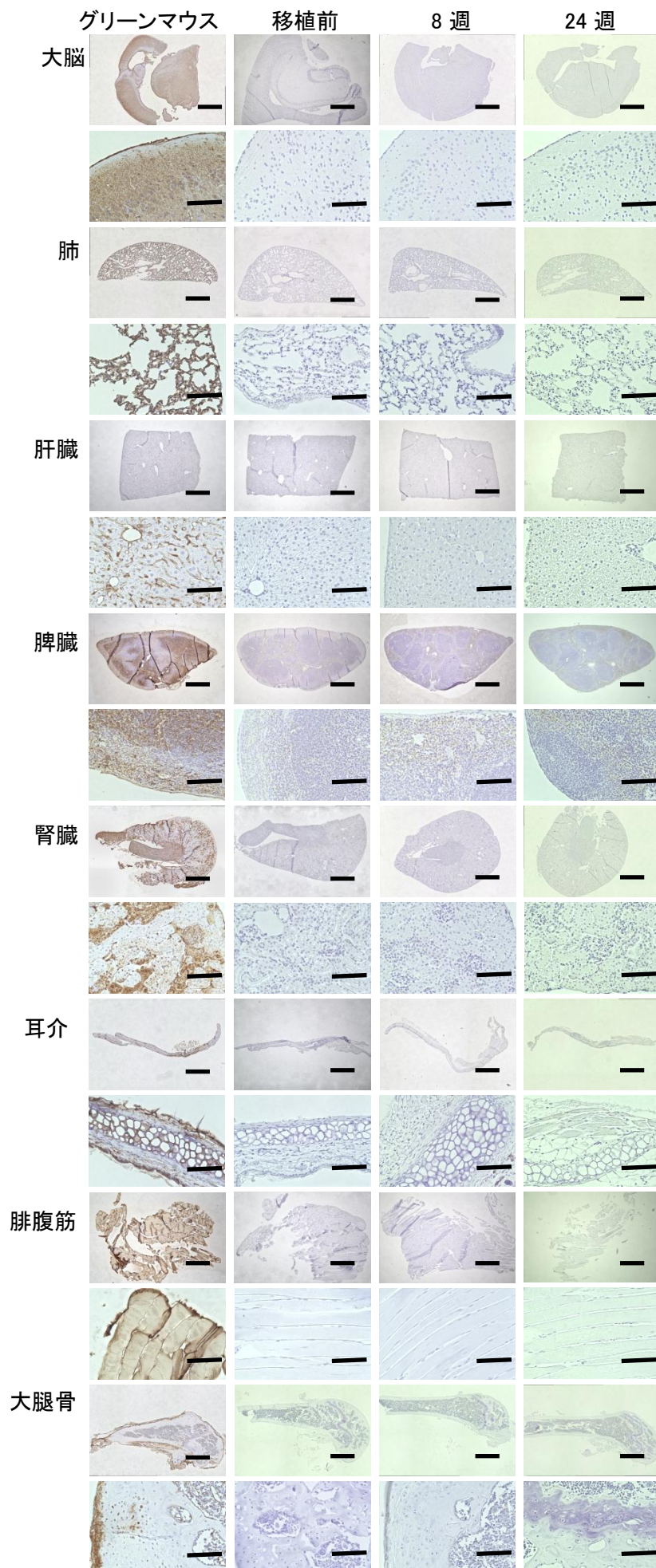
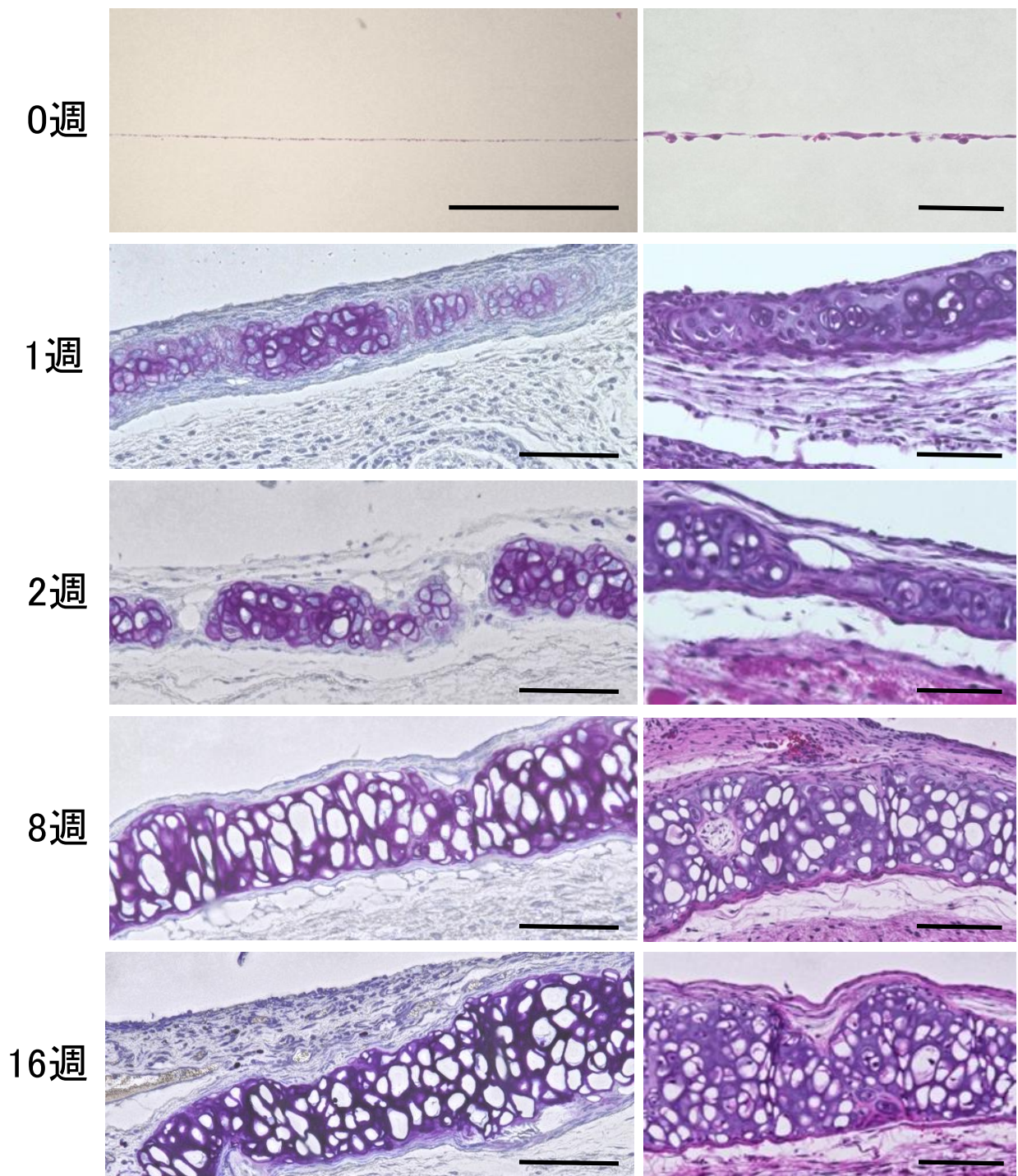
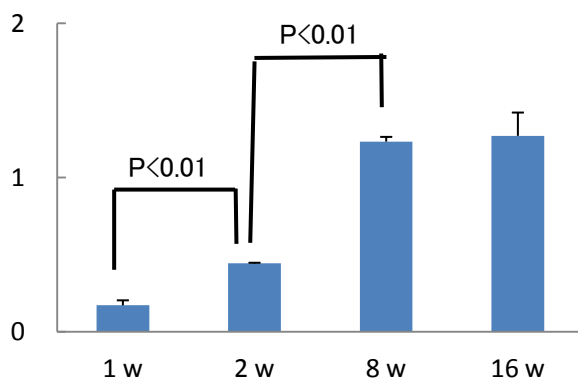


図4: 再生軟骨領域の面積と領域数の測定



島状軟骨領域の面積(μm^2)/長さ(μm)



軟骨領域数(個)/領域長さ(mm)

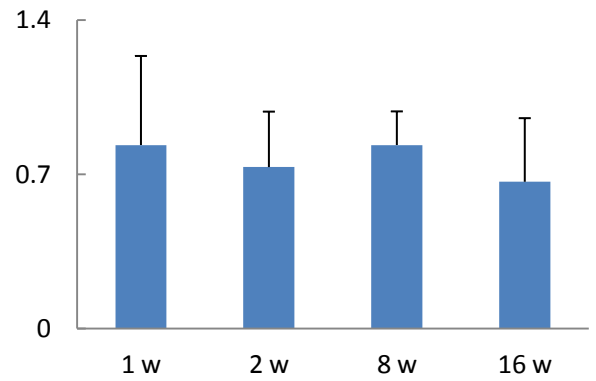


図5: 培養軟骨細胞に含まれる軟骨再生前駆細胞の検索
ヒト耳介軟骨細胞(第2 継代)

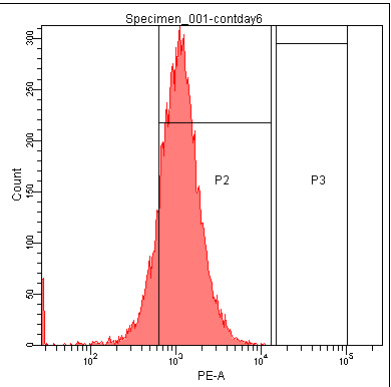
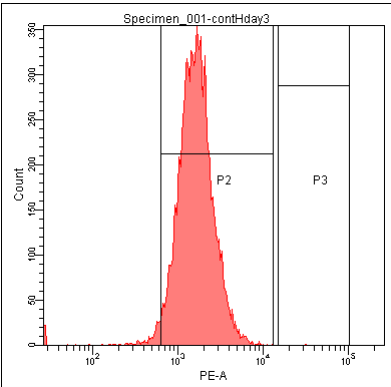
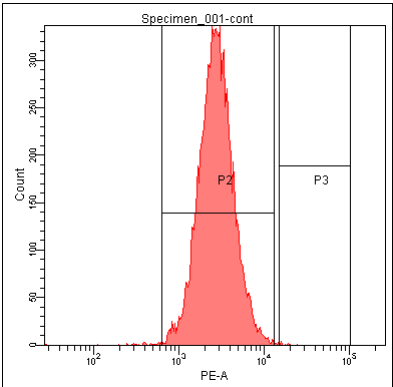
MitomycinC未処理群

0日目

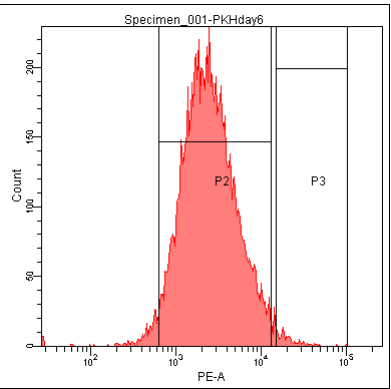
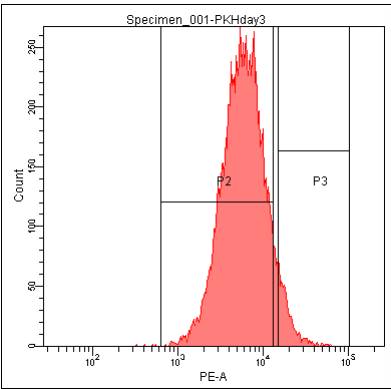
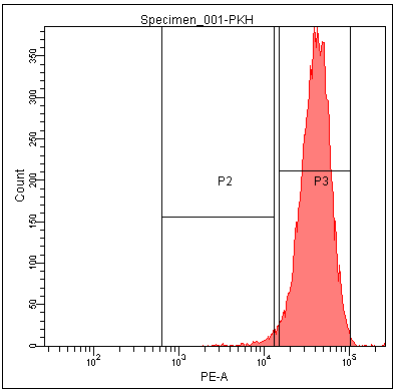
3日目

6日目

control



PKH



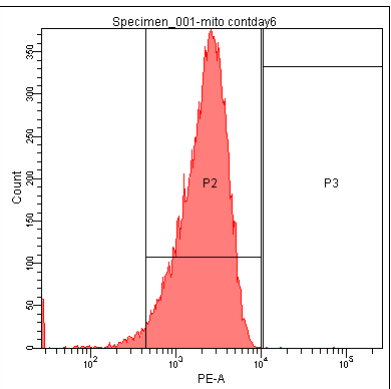
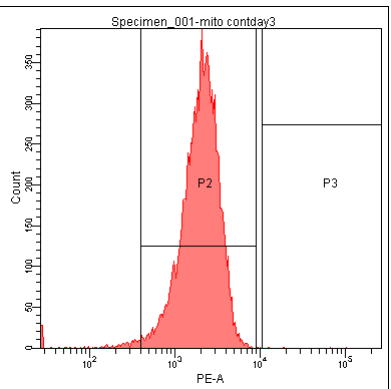
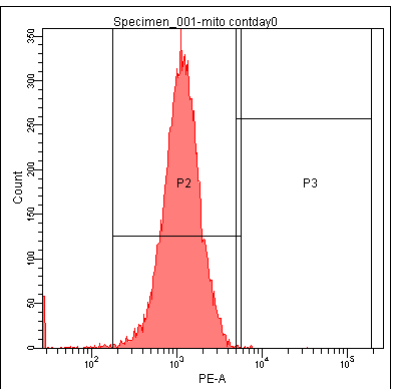
MitomycinC処理群

0日目

3日目

6日目

control



PKH

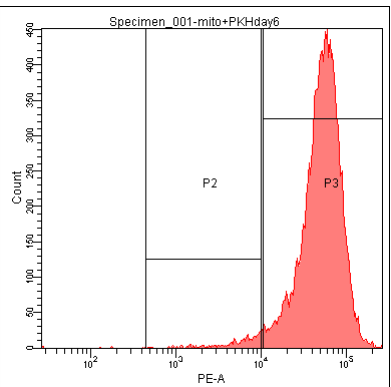
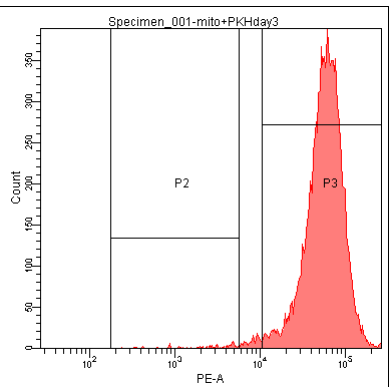
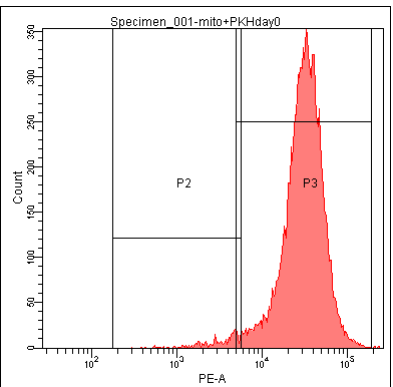
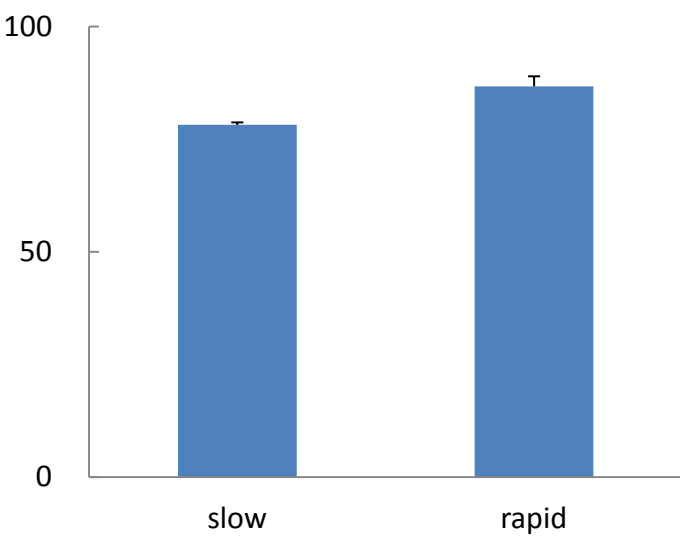
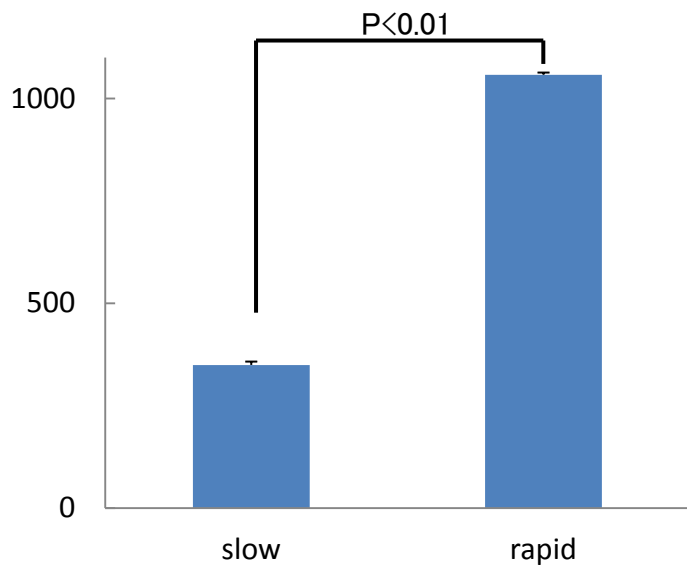


図6: 軟骨再生前駆細胞による軟骨再生の検証 (in vitro)

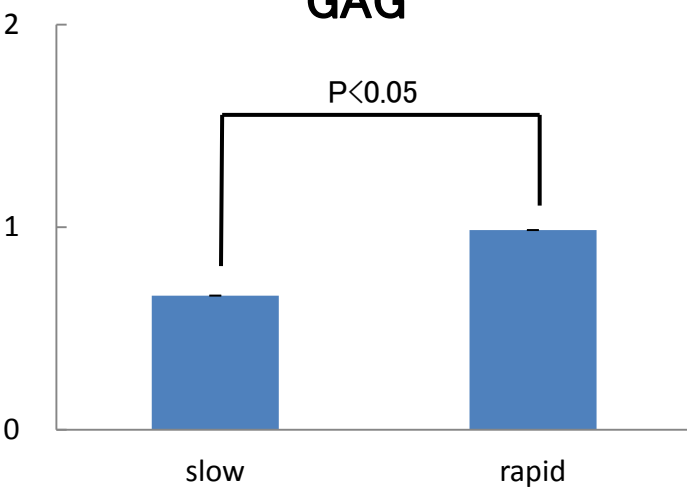
COL1A1



COL2A1



GAG



TB

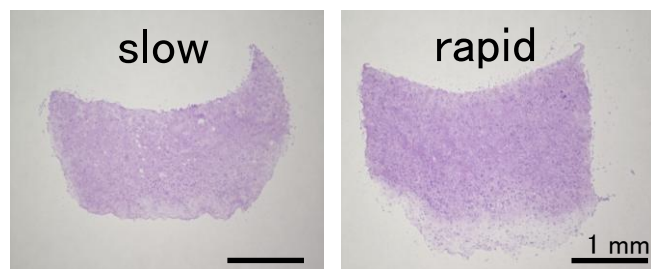


図7: 軟骨再生前駆細胞による軟骨再生の検証 (in vivo)

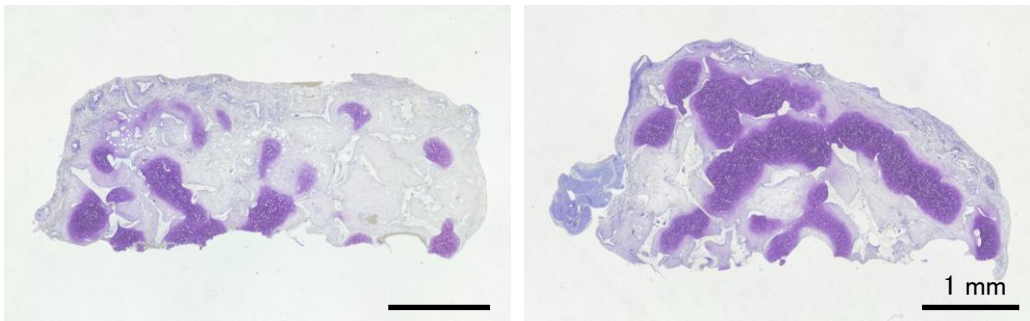
slow

rapid

肉眼
所見



TB染色



HE染色

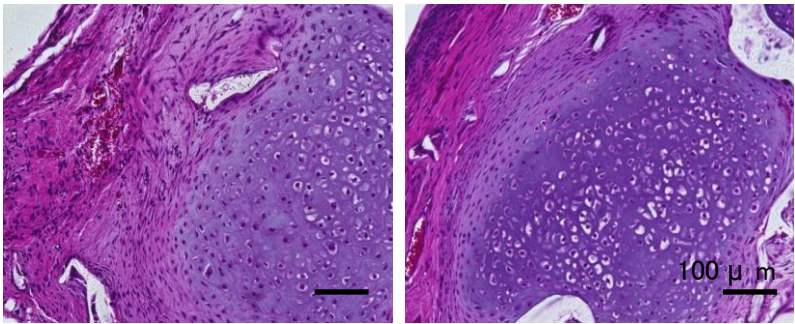


図8: 軟骨細胞を移植した周囲組織における各種因子の局在検討

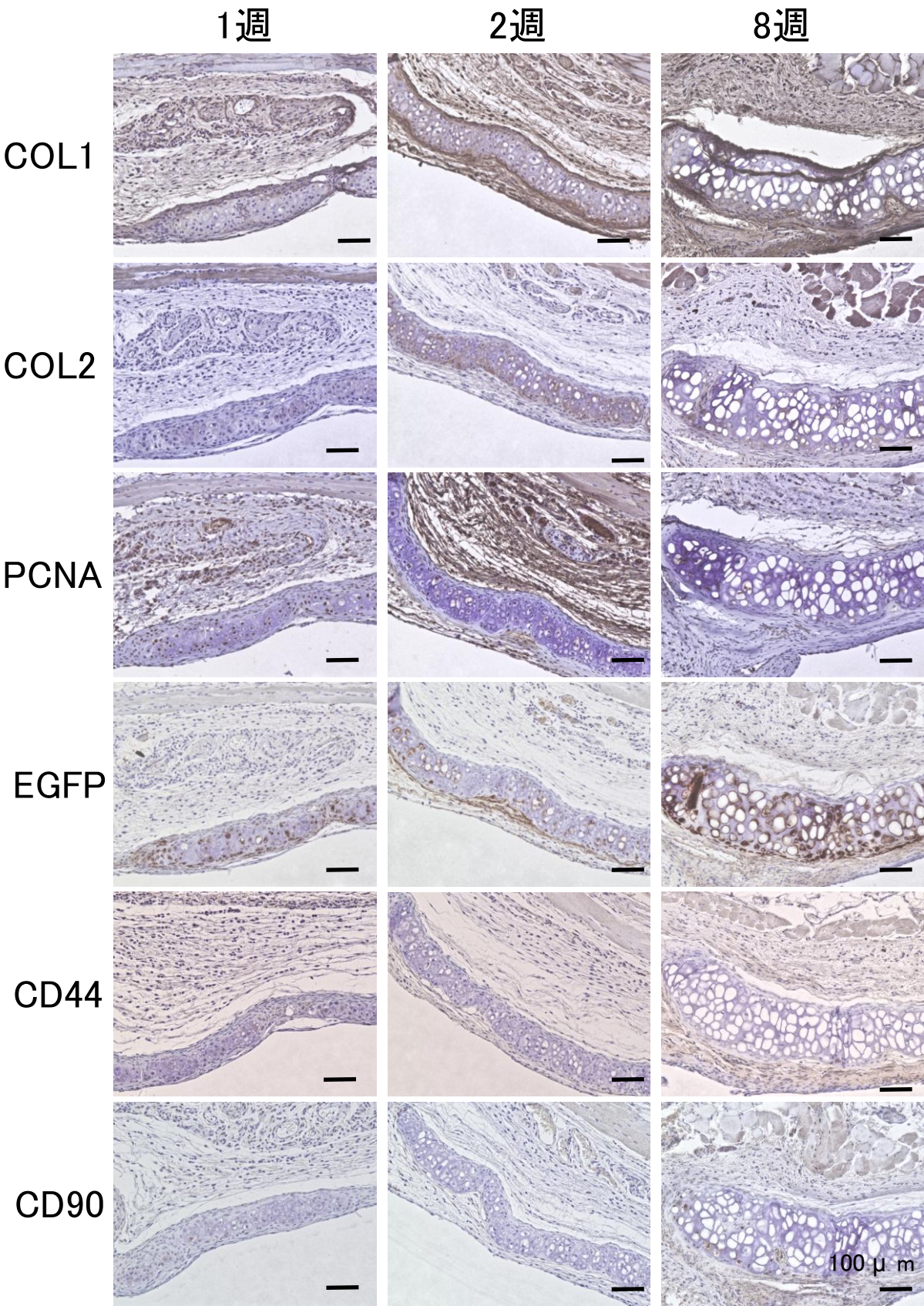


図9: 軟骨細胞に関連する転写因子の局在検討

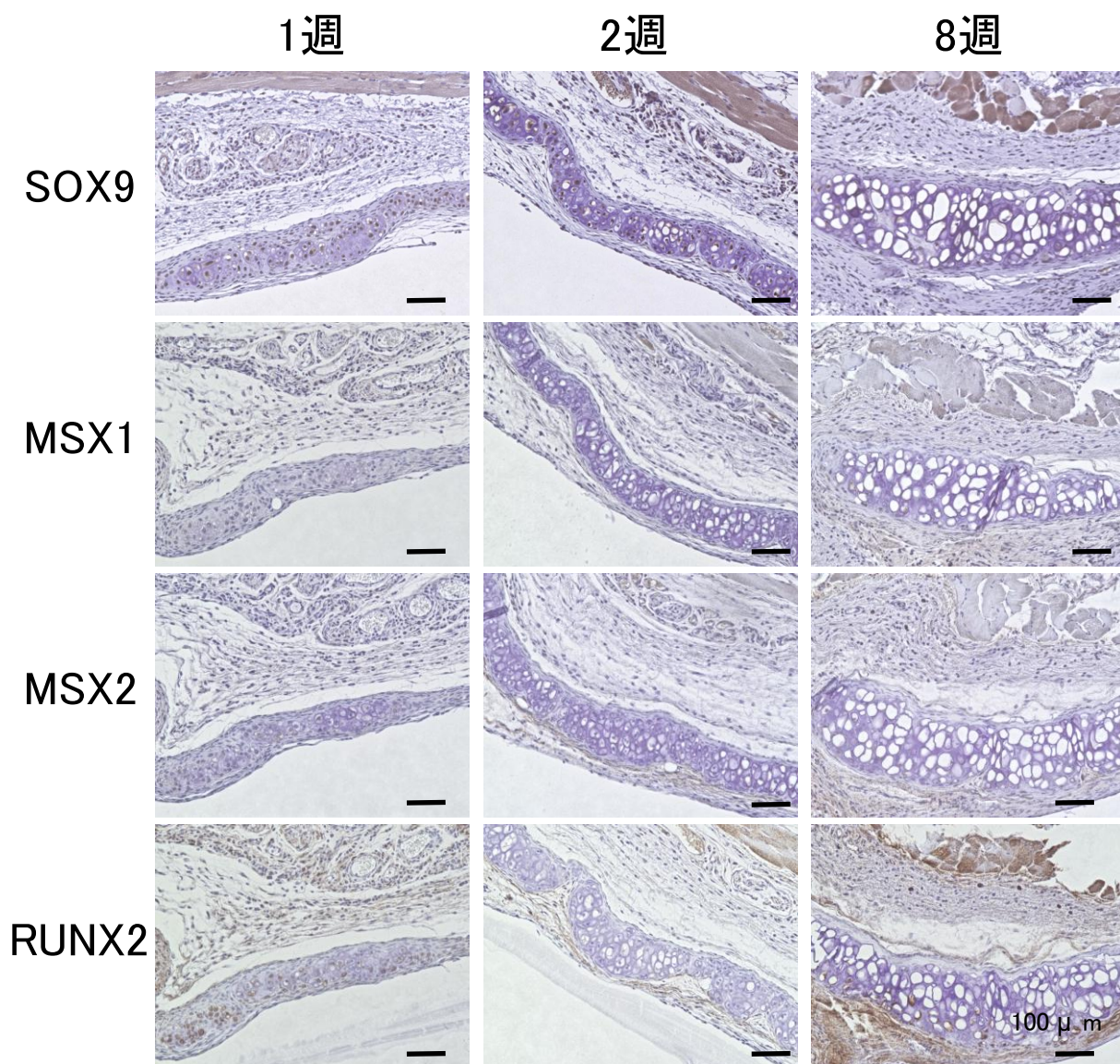


図10: 軟骨細胞分化に関する成長因子の局在検討

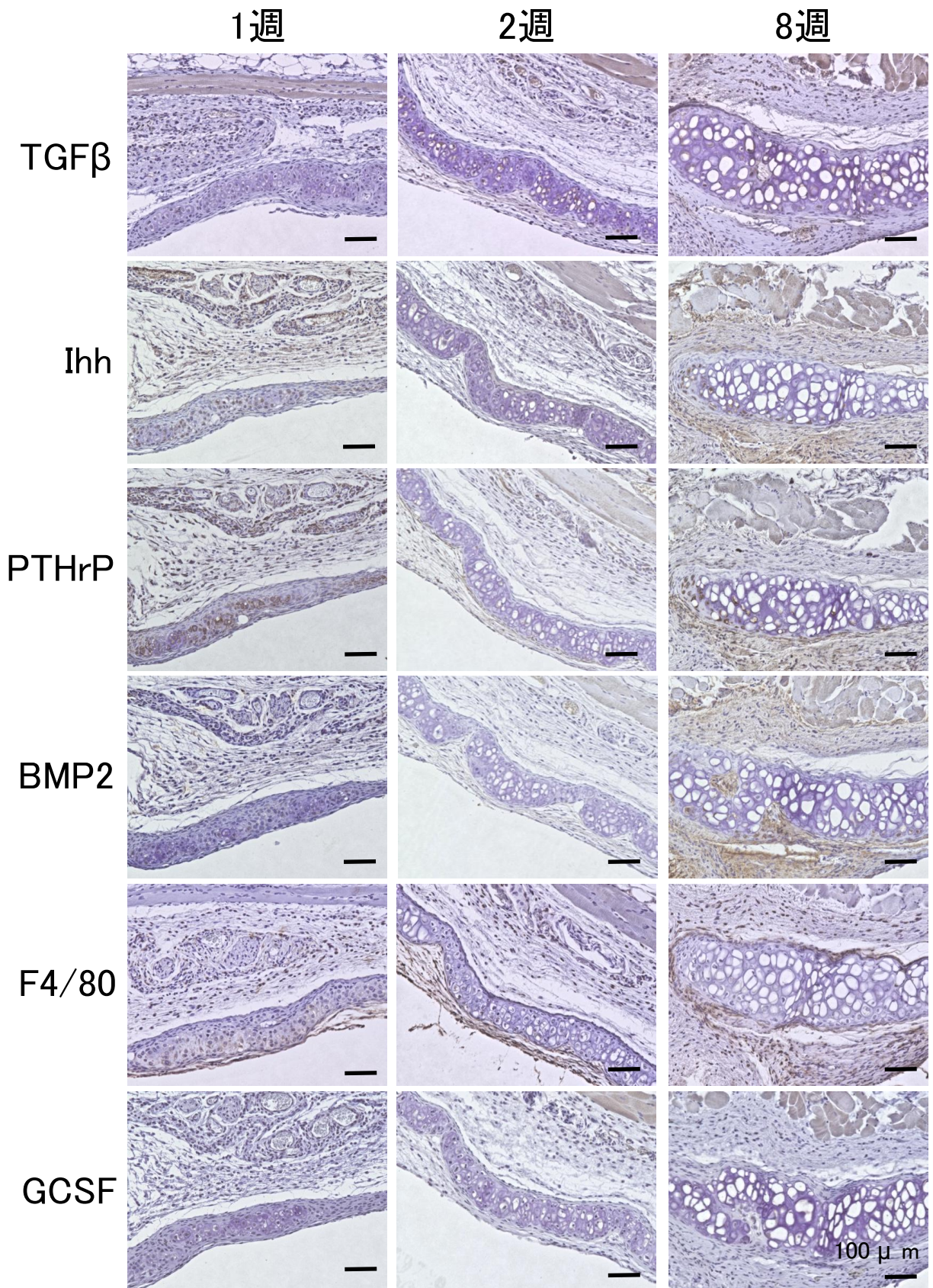
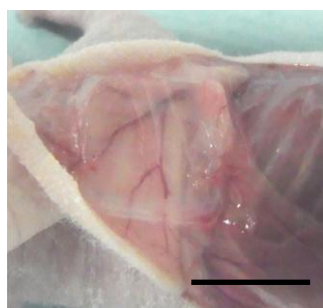
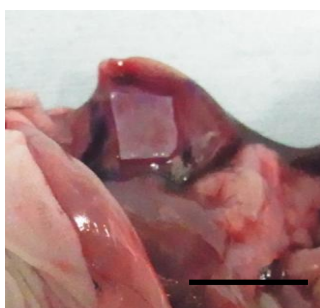


図11: 各部位へ移植を行ったヒト再生軟骨組織の肉眼所見

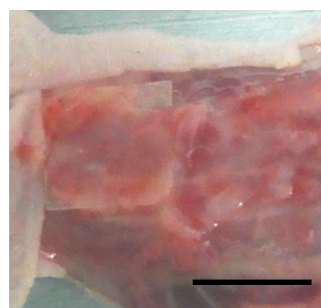
背面皮下



腹腔内



背面筋肉



頭蓋骨膜下

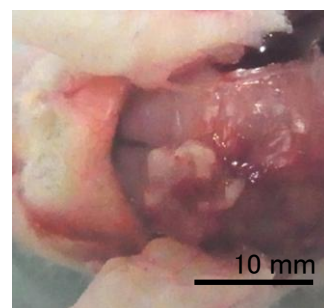


図12: 部位に移植したヒト再生軟骨組織の組織学的所見 I

トルイジンブルー染色

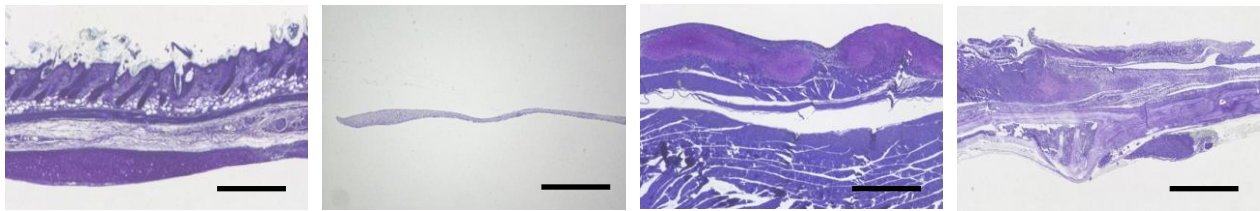
背面皮下

腹腔内

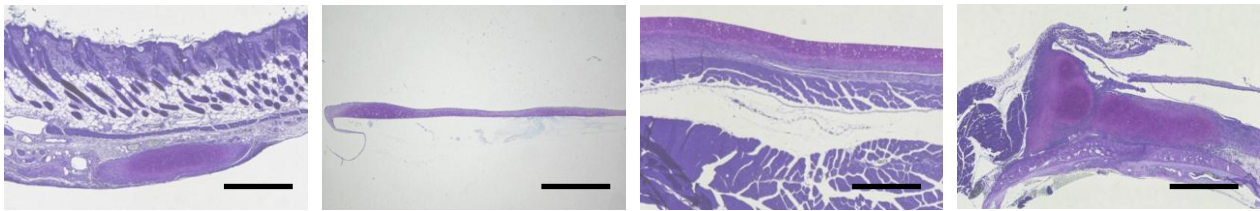
背面筋肉

頭蓋骨膜下

1 週



2 週



8 週

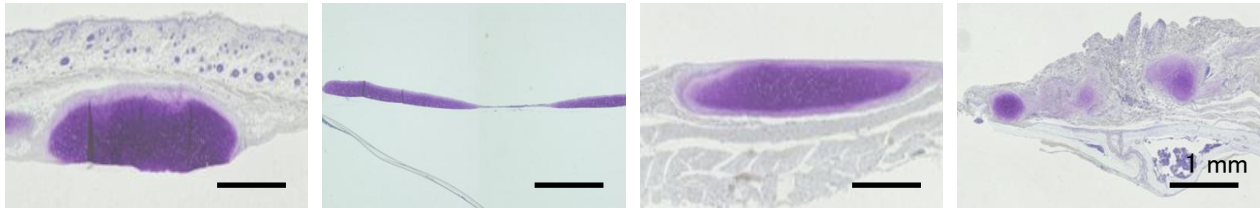


図13: 各部位に移植したヒト再生軟骨組織の組織学的所見 II

HE染色

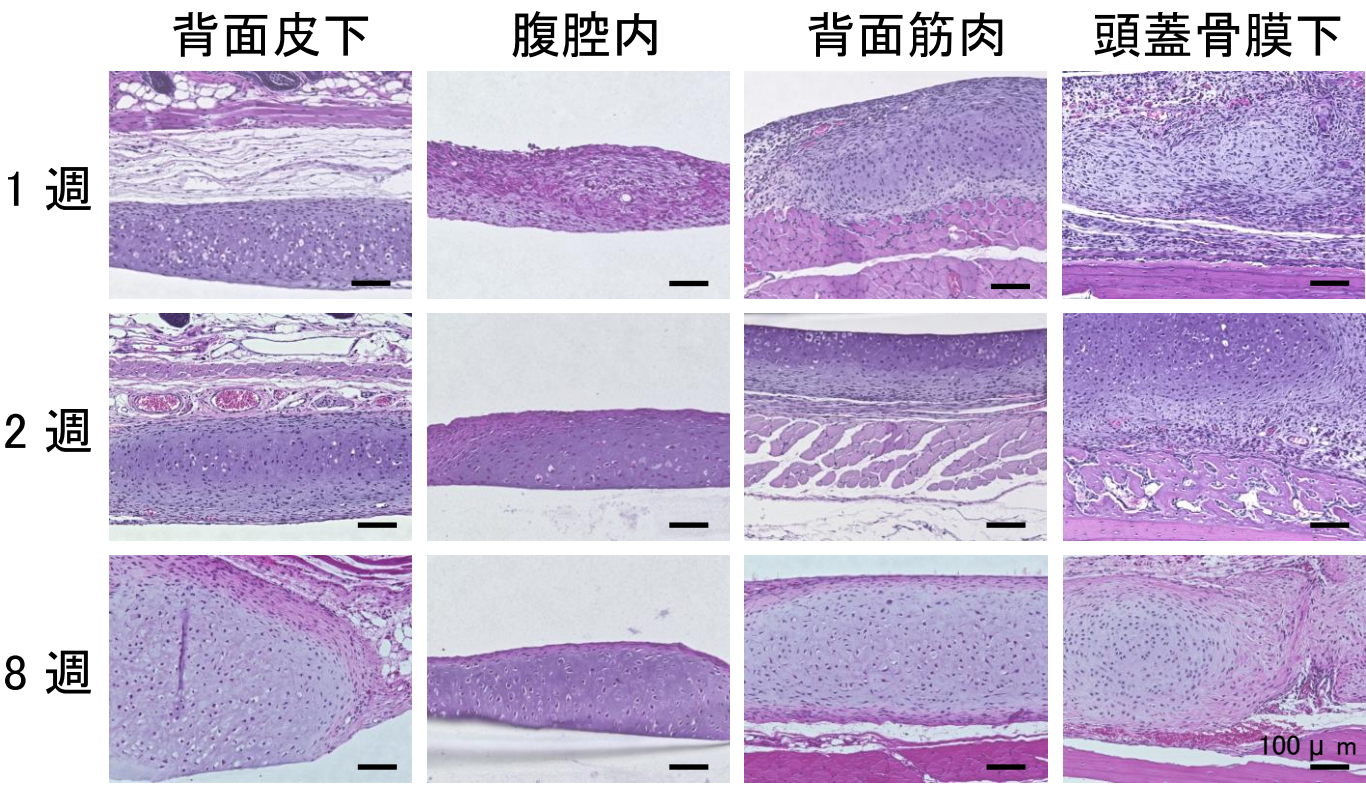


図14: 各部位に移植したヒト再生軟骨組織の免疫組織化学的所見 I

I 型コラーゲン免疫染色

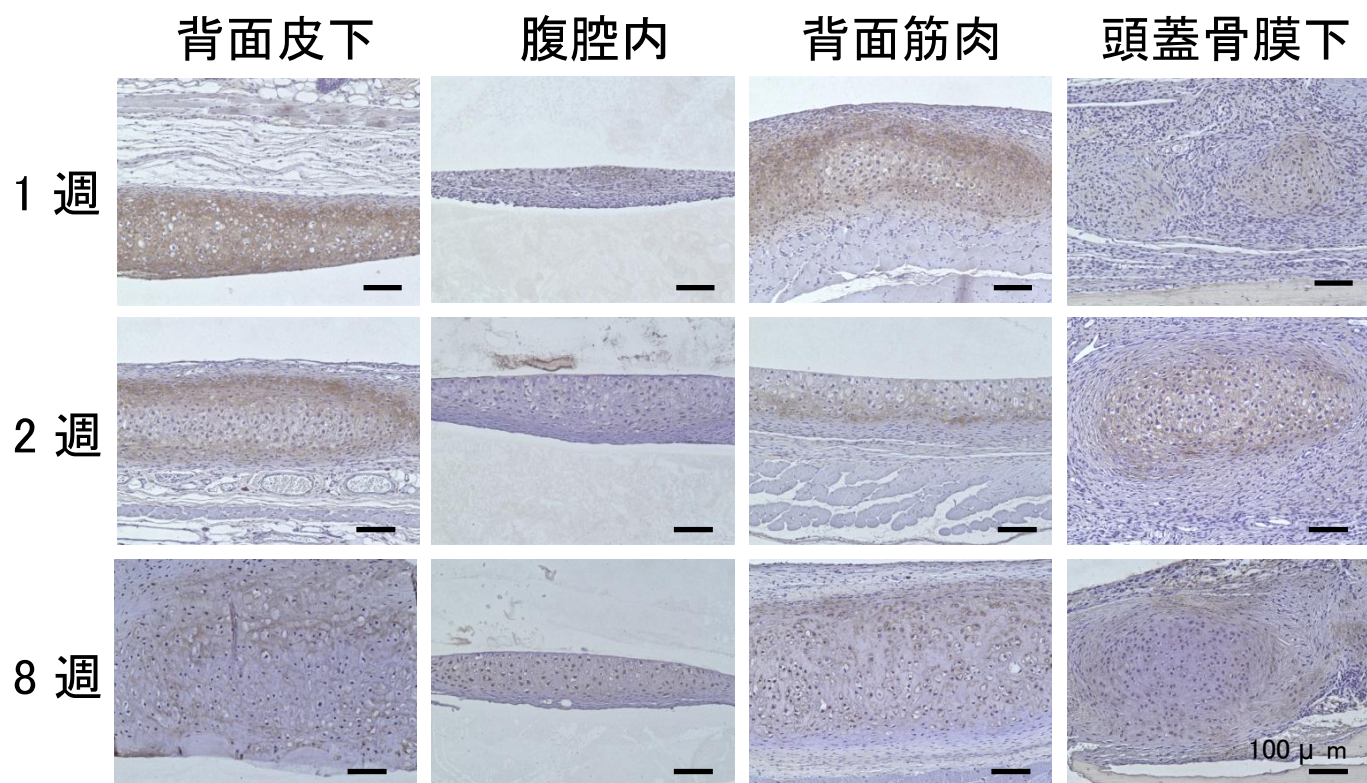


図15: 各部位に移植したヒト再生軟骨組織の免疫組織化学的所見 II

II 型コラーゲン免疫染色

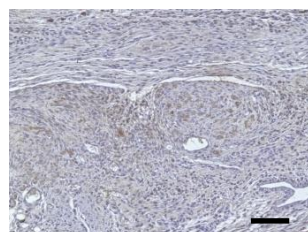
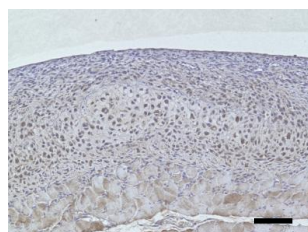
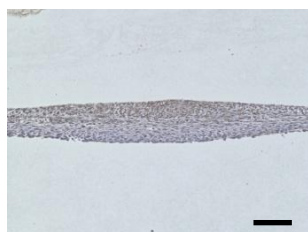
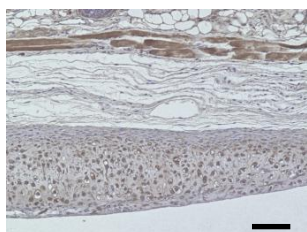
背面皮下

腹腔内

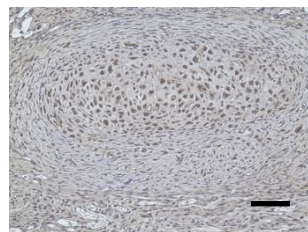
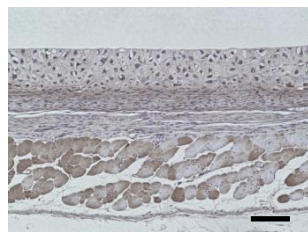
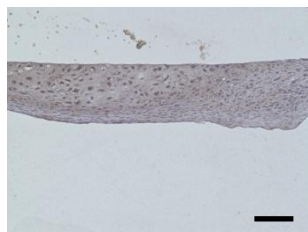
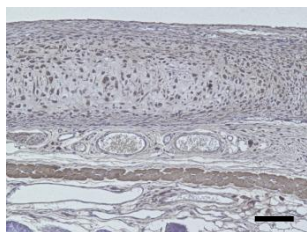
背面筋肉

頭蓋骨膜下

1 週



2 週



8 週

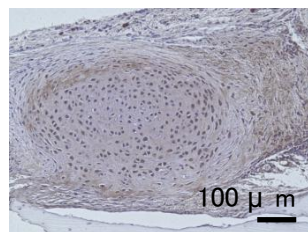
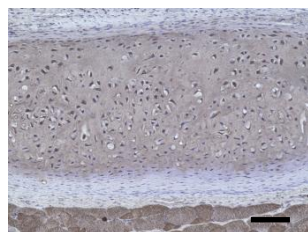
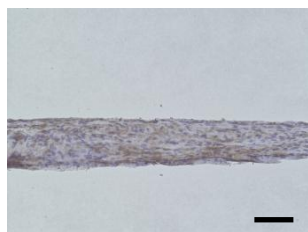
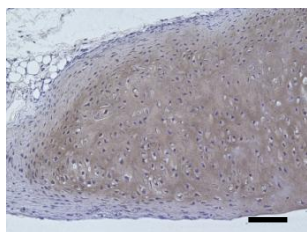
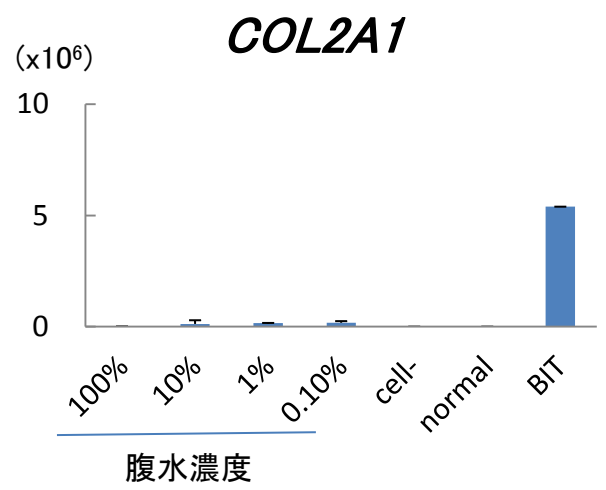
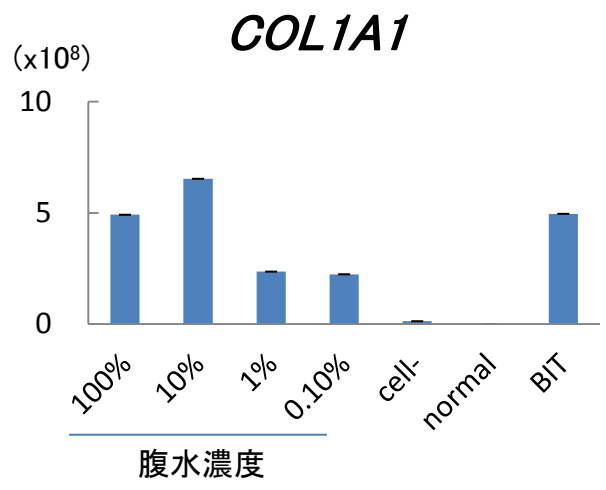
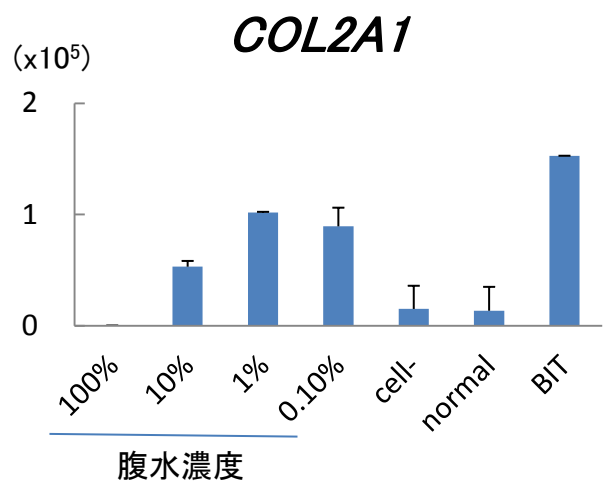
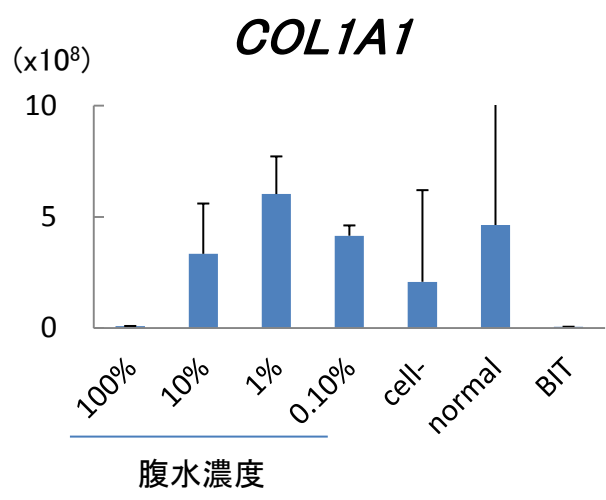


図16: 腹水上清を用いたヒト耳介軟骨細胞の培養

1 週



2 週



8 週

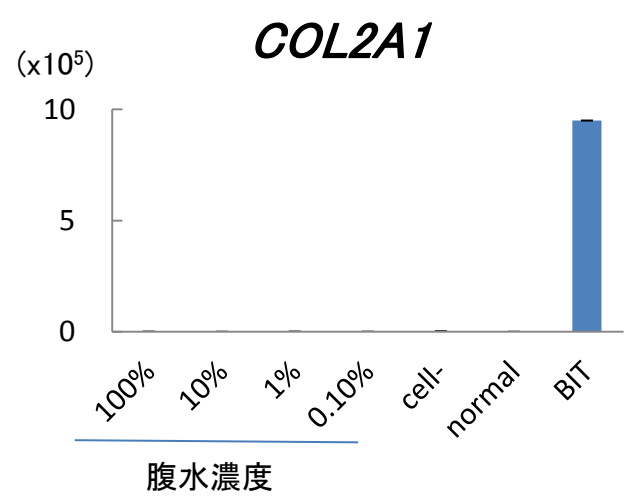
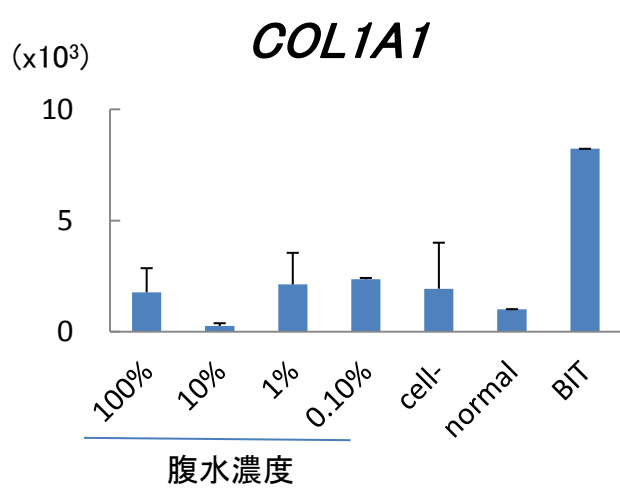


図17: 腹水中細胞とヒト耳介軟骨細胞との共培養

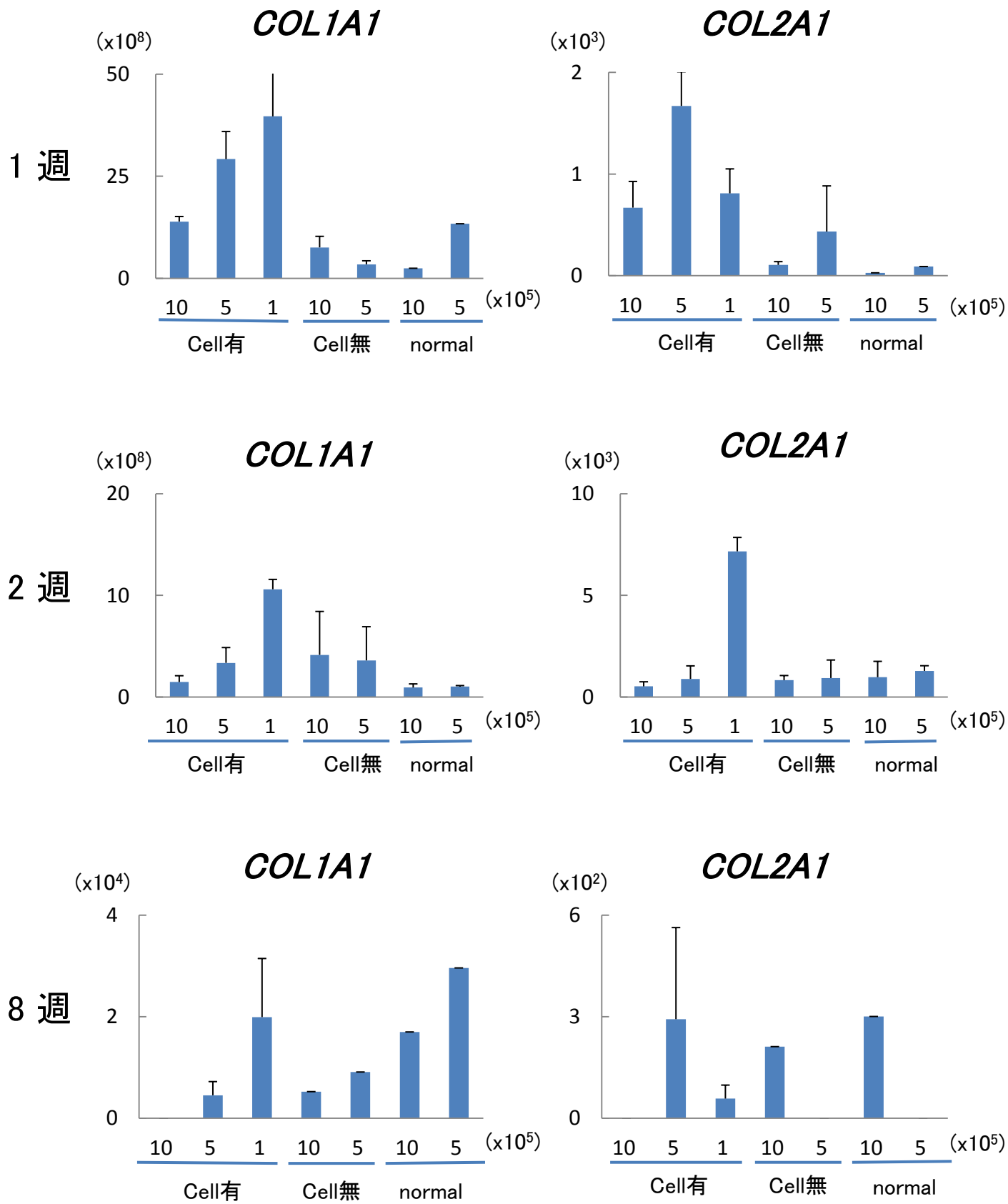


図18: 成熟誘導因子の網羅的解析

	Gene Title	Log2_Ratio
1	hemoglobin alpha, adult chain 1 /// hemoglobin alpha, adult chain 2	3.149
2	hemoglobin alpha, adult chain 1 /// hemoglobin alpha, adult chain 2	2.701
3	hemoglobin subunit beta-1-like /// hemoglobin, beta adult major chain /// hemoglobin, beta adult minor chain	2.607
4	hemoglobin alpha, adult chain 1 /// hemoglobin alpha, adult chain 2	2.606
5	PDZ binding kinase	2.444
6	insulin-like growth factor binding protein 4	2.235
7	RIKEN cDNA 2810417H13 gene	2.123
8	ribonucleotide reductase M2	2.075
9	stathmin 1	2.050
10	chemokine (C-C motif) receptor 5	2.022
11	chitinase 3-like 3	2.011
12	chitinase 3-like 3 /// chitinase 3-like 4	2.000
::	::	::
::	::	::
19974	cortactin	-2.00627
19975	caldesmon 1	-2.00994
19976	chymase 1, mast cell	-2.03784
19977	histidine decarboxylase	-2.07067
19978	ATP-binding cassette, sub-family A (ABC1), member 6	-2.07454
19979	---	-2.08951
19980	guanine nucleotide binding protein (G protein), alpha inhibiting 1	-2.09955
19981	---	-2.10226
19982	serine (or cysteine) peptidase inhibitor, clade E, member 2	-2.11121
19983	mast cell protease 4	-2.1949
19984	solute carrier family 10 (sodium/bile acid cotransporter family), member 6	-2.19888
19985	tryptophan hydroxylase 1	-2.20497
19986	tryptase alpha/beta 1	-2.22228
19987	RAB27b, member RAS oncogene family	-2.27669
19988	---	-2.27834
19989	MAS-related GPR, member B1	-2.32246
19990	Fc receptor, IgE, high affinity I, alpha polypeptide	-2.3359
19991	---	-2.39838
19992	RIKEN cDNA 1810011O10 gene	-2.48137
19993	tryptase beta 2	-2.56068
19994	RIKEN cDNA 1810011O10 gene	-2.61272
19995	NIPA-like domain containing 1	-2.63058
19996	zinc finger and BTB domain containing 16	-2.6619
19997	methyl-CpG binding domain protein 1	-2.89766
19998	FK506 binding protein 5	-3.26185
19999	fatty acid binding protein 4, adipocyte	-3.90084
20000	fatty acid binding protein 4, adipocyte	-4.34413

図19: 成熟誘導因子の検証

