



**B**

**Teeth associations:**

'Lpremolar spacing of lower premolars'	cne.194306	COL3A1	HP:0000164,HP:0000670,HP:0006323,HP:0006480,HP:0006481,HP:0006482,HP:0011061
'Lpremolar spacing of lower premolars'	cne.248858	SLC2A9	MP:0002987,MP:0002988
'Lpremolar spacing of lower premolars'	cne.358541	TRPS1	HP:0000164,HP:0000670,HP:0000684,HP:0000692,HP:0006483,HP:0011069,HP:0000678,HP:0000689,HP:0006292,HP:0006482,HP:0011061
'Lpremolar spacing of lower premolars'	cne.358684	TRPS1	HP:0000164,HP:0000670,HP:0000684,HP:0000692,HP:0006483,HP:0011069,HP:0000678,HP:0000689,HP:0006292,HP:0006482,HP:0011061
'Lpremolar spacing of lower premolars'	cne.358988	EXT1	HP:0000164
'Lpremolar spacing of lower premolars'	cne.63397	CTSC	HP:0000164,HP:0006323,HP:0006480,HP:0006481,HP:0006483,HP:0009804
'i3 presence of Li3'	cne.298759	MSX2	MP:0000120,MP:0000124,MP:0000126,MP:0002100,MP:0000116,MP:0000118,MP:0003930
'i3 presence of Li3'	cne.30352	USH2A	HP:0000164,HP:0000670,HP:0000682,HP:0006482,HP:0011061,HP:0011073
'i3 presence of UI3'	cne.68000	PVRL1	MP:0002100,HP:0000164,HP:0000670,HP:0006483,HP:0009804,MP:0000116,MP:0002817,MP:0003930,HP:0000682,HP:0006482,HP:0011061
'Teeth carnassial shearing presence'	cne.194293	COL3A1	HP:0000164,HP:0000670,HP:0006323,HP:0006480,HP:0006481,HP:0006482,HP:0011061
'Teeth presence of bone between each alveolus for the upper teeth'	cne.261430	PITX2	MP:0000120,MP:0002100,HP:0000164,HP:0000692,HP:0006483,HP:0009804,MP:0000116,MP:0000118,HP:0000689,HP:0006482

10/11 CNEs 8/9 Genes

**C**

Trait type (tissue/organ)	CNE mapping accuracy	Gene mapping accuracy	Morphobank trait	Gene	MGI/HPO term
Teeth	10/11 (90.9%)	8/9 (88.9%)	'p4 presence of <u>tooth</u> at Lp4'	<i>NFIC</i>	MP:0000116 Abnormal <u>tooth</u> development
Brain	78/87 (89.7%)	79/89 (88.8%)	'Brain – <u>inferior colliculus</u> exposure presence'	<i>KAT6B</i>	MP:0000776 Abnormal <u>inferior colliculus</u> morphology
Liver	5/5 (100%)	4/4 (100%)	' <u>Liver</u> lobe fusion - caudate and left lateral lobes fusion'	<i>WWOX</i>	MP:0000598 Abnormal <u>liver</u> morphology
Forelimb	24/28 (85.7%)	22/26 (84.6%)	' <u>Radius</u> , Styloid process, presence'	<i>EGR2</i>	MP:0000552 Abnormal <u>radius</u> morphology
Genitourinary system	55/57 (96.5%)	53/55 (96.4%)	'UG Tract - <u>Urethral</u> process presence'	<i>BDNF</i>	HP:0000795 Abnormality of the <u>urethra</u>
Prenatal development	37/42 (88.1%)	28/33 (84.8%)	'Development - Fenestrated <u>trophoblast</u> '	<i>NRK</i>	MP:0005031 Abnormal <u>trophoblast</u> layer morphology