

Table S2 Statistical examination of skeletal phenotypes in the allelic series of *Sall4*; *Plzf* mutants

For simplicity of presentation, *Hoxb6Cre*^{+/Tg} is not shown in the following genotypes in the table. *Hoxb6Cre*^{+/Tg}; *Sall4*^{fl/fl}, *Hoxb6Cre*^{+/Tg}; *Sall4*^{+/fl}; *Plzf*^{-/-}, *Hoxb6Cre*^{+/Tg}; *Sall4*^{fl/fl}; *Plzf*^{+/+}, *Hoxb6Cre*^{+/Tg}; *Sall4*^{fl/fl}; *Plzf*^{-/-}.

Hypothesis 1	In the femur, the ratio of small cartilage aggregate in each genotype is different.		
The p value of Fisher test of independence for the entire group			<.001(4.09E-10)
Pairwise test by Fisher's exact test			
Tested pairs		P value	Significant?
Wild type	<i>Sall4</i> ^{fl/fl}	1	No
Wild type	<i>Plzf</i> ^{-/-}	1	No
Wild type	<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	1	No
Wild type	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	1	No
Wild type	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	5.84E-06	Yes
<i>Sall4</i> ^{fl/fl}	<i>Plzf</i> ^{-/-}	1	No
<i>Sall4</i> ^{fl/fl}	<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	1	No
<i>Sall4</i> ^{fl/fl}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	1	No
<i>Sall4</i> ^{fl/fl}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	2.14E-06	Yes
<i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	1	No
<i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	1	No
<i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	1.81E-04	Yes
<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	1	No
<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	2.97E-04	Yes
<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	1.43E-05	Yes

Hypothesis 2	In the tibia, the ratio of "missing" in each genotype is different.		
The p value of Fisher test of independence for the entire group			<.001(7.157E-14)
Pairwise test by Fisher's exact test			
Tested pairs		P value	Significant?
Wild type	<i>Sall4</i> ^{fl/fl}	0.0144	No
Wild type	<i>Plzf</i> ^{-/-}	0.0401	No
Wild type	<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	3.01E-04	Yes
Wild type	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	7.69E-06	Yes
Wild type	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	1.77E-13	Yes
<i>Sall4</i> ^{fl/fl}	<i>Plzf</i> ^{-/-}	0.757	No
<i>Sall4</i> ^{fl/fl}	<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	0.117	No
<i>Sall4</i> ^{fl/fl}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	0.0236	No
<i>Sall4</i> ^{fl/fl}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	6.23E-09	Yes
<i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	0.0893	No
<i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	0.0150	No
<i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	1.04E-08	Yes
<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	1	No
<i>Sall4</i> ^{+/fl} ; <i>Plzf</i> ^{-/-}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	1.84E-04	Yes
<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{+/+}	<i>Sall4</i> ^{fl/fl} ; <i>Plzf</i> ^{-/-}	3.69E-05	Yes

Hypothesis 3	In the fibula, the ratio of small cartilage in each genotype is different.		
The p value of Fisher test of independence for the entire group			<.001(2.143E-12)
Pairwise test by Fisher's exact test			
Tested pairs		P value	Significant?
Wild type	<i>Sall4^{fl/fl}</i>	1	No
Wild type	<i>Plzf^{f/-}</i>	1	No
Wild type	<i>Sall4^{+/fl}; Plzf^{f/-}</i>	1	No
Wild type	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1	No
Wild type	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1.21E-06	Yes
<i>Sall4^{fl/fl}</i>	<i>Plzf^{f/-}</i>	1	No
<i>Sall4^{fl/fl}</i>	<i>Sall4^{+/fl}; Plzf^{f/-}</i>	1	No
<i>Sall4^{fl/fl}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1	No
<i>Sall4^{fl/fl}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	3.93E-07	Yes
<i>Plzf^{f/-}</i>	<i>Sall4^{+/fl}; Plzf^{f/-}</i>	1	No
<i>Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1	No
<i>Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	4.27E-06	Yes
<i>Sall4^{+/fl}; Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1	No
<i>Sall4^{+/fl}; Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	9.89E-05	Yes
<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	3.02E-07	Yes

Hypothesis 4	In the autopod, the ratio of loss of more than 2 digits phenotype in each genotype is different.		
The p value of Fisher test of independence for the entire group			< 2.2e-16
Pairwise test by Fisher's exact test			
Tested pairs		P value	Significant?
Wild type	<i>Sall4^{fl/fl}</i>	0.247	No
Wild type	<i>Plzf^{f/-}</i>	1	No
Wild type	<i>Sall4^{+/fl}; Plzf^{f/-}</i>	1	No
Wild type	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	0.0308	No
Wild type	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1.77E-13	Yes
<i>Sall4^{fl/fl}</i>	<i>Plzf^{f/-}</i>	0.262	No
<i>Sall4^{fl/fl}</i>	<i>Sall4^{+/fl}; Plzf^{f/-}</i>	0.549	No
<i>Sall4^{fl/fl}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	0.491	No
<i>Sall4^{fl/fl}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	2.26E-11	Yes
<i>Plzf^{f/-}</i>	<i>Sall4^{+/fl}; Plzf^{f/-}</i>	1	No
<i>Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	0.0411	No
<i>Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	2.03E-12	Yes
<i>Sall4^{+/fl}; Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	0.172	No
<i>Sall4^{+/fl}; Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1.00E-09	Yes
<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	<i>Sall4^{fl/fl}; Plzf^{f/-}</i>	1.15E-09	Yes