***Steel, Steel Factor, Stem cell factor, Kit Ligand (Sl, SF, SCF, Kitl)* – Let's use *Kit ligand*, which is the latest.**

Research Applications

Pigmentation
Neural Crest Function
Cell Survival
Anemia
Deafness
Brain Development
Mast Cells
T Cells
Reproductive Cells
Cell Surface Receptor/Ligand Interactions
Cell Migration Patterns

Characteristics of the *Kitl* Locus

Mice mutant at this locus have defects affecting pigmentation, development of red blood cells and reproductive cells, inner ear and mast cells, T-cell precursors and hippocampal learning. Homozygotes of most alleles are lethal. This locus encodes a protein that is present in two forms, the transmembrane form and the soluble form. The latter is required for melanoblast survival and dispersal, and the former is necessary for melanocyte survival in the dermis.

The Kit ligand, produced by the substrate in which the melanoblast/melanocyte resides, must bind with and activate the Kit receptor on the surface of the melanoblast/melanocyte. If either Kit or Kit ligand is defective, the result is white spotting, or failure of survival of the pigment cell. This same interaction accounts for the pleiotropic effects that result from mutation at either locus. Binding of Kit and Kit ligand is necessary for the development of red blood cells, mast cells, reproductive cells and other specific developmental events. It is interesting to note phenotypic differences between mice heterozygous for *Kit* mutants and those heterozygous for *Kit-ligand* mutants. The former phenotypes reflect failure of migration of the pigment cells, while the latter demonstrate an overall partial failure of survival.

Factors at or near the *Kitl* locus (in mice not spotted as a result of mutation at *Kitl*) have been shown to influence the size and/or location of spotting at the piebald (*Ednrb*^{s}) locus.

References

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