



RESEARCH MODELS

Rats

Mice

Other rodents



SPRAGUE DAWLEY® Hairless Rat

- **Strain name:** Rj:SDH-*Dsg4*
- **Type:** Mutant outbred rat
- **Origin:** Bayer Schering Pharma AG (Germany) - 2008
- **Colour and related genotype:** albino rat - *Tyr^c/Tyr^c*
- **Breeding:** Good breeder, mating scheme: homozygous ♂ x heterozygous ♀ (Homozygous female has a deficient lactation)

Description of our model

R. W. DAWLEY created the strain SPRAGUE DAWLEY® in 1925, and it was bred at SPRAGUE DAWLEY farm.

The hairless mutation appeared in a SPRAGUE DAWLEY® colony in 2004; Bazzi *et al.* studied the development of the hair follicle in individuals that displayed the hairless phenotype. "Hairless" rats have hair shafts shaped like a lance head ("lanceolate"). This characteristic which presents similarities with other rodents' hair, led Bazzi *et al.* to study the gene responsible for this phenotype. During their research, they identified the desmoglein-4 gene (*Dsg-4*) in chromosome 18. The nature of the mutation has been shown to be a deletion of 9 exons. The desmogleins (*Dsgs*), cadherin-type cell adhesion proteins, are involved in the cell's adhesion process and in the mechanisms of epithelial cell stability and integrity. The mutation may disturb the extracellular interactions of the protein by a defect of fixation of calcium on its calcic reception sites.

There is no observable abnormality in the first stages of hair follicle morphogenesis. There are however, severe impairments of next steps of internal epithelial sheath and of the formation of the hair shaft. These are due to a bad proliferation of the hair matrix and to an abnormal differentiation in the pre-cortex region. This leads to a decrease in size of hair bulbs and to the formation of dysmorphic hair shafts.

Animals with the hairless phenotype show abnormalities in hair and vibrissae growth, and a thickened epidermis, while having a functional immune system (they are immunocompetent). This phenotype appears at the age of 4 weeks and becomes permanent at about 8 – 9 weeks. Homozygous females have a deficient lactation that prevents them from nursing their young.

Reproductive data*	
Monogamous mating	
Litter size at birth	5.66 (homozygous mutants)
Weaning %	92 (homozygous mutants)
Productivity index	1.39 (homozygous mutants)
Sterility %	1
Gestation time	Between 20 and 23 days

* JANVIER LABS 2011 Data, for an indicative basis



www.janvier-labs.com

Main application and research fields

- Cosmetology
- Dermatology
- Pharmacology
- Toxicology by dermal route

Our added value

- The « JANVIER LABS Genetic Policy », a specific programme, guarantees the homogeneity of the genetic background, identical to the wild types used as controls.
- Animals with the SPF or SOPF standards.
- A gentling policy for docile and easy-to-handle animals.
- Optimal stability conditions of our models during shipments, thanks to our dedicated and internal transport service.
- A scientific support with a team of Veterinarians and PhD.

The available scientific bibliography:

Research has been conducted, all over the world, from models bred in our laboratories. Discover our updated bibliography of available studies on our Internet website, heading: Customer Support.

Our additional services



Laboratory Services



Transgenic Services