



Genetic monitoring of inbred rats as supplied by the University of Adelaide's Laboratory Animal Services - June, 2008.

Two inbred strains of the laboratory rat were provided for assessments of their genetic authenticity. A set of standard electrophoretic markers known to display genetically-determined variation amongst inbred and outbred strains was screened for the four animals supplied. The results of the electrophoretic screen are shown in the table below.

Allelic profiles at 15 genetic markers for the two strains provided. The markers AHD-K and AP-R have not yet been formally described; they do nevertheless exhibit genetically-determined variation, expressing two co-dominant allozymes, s ("slow" mobility) and f ("fast" mobility). The profile expected for the DA group of substrains is shown for reference. (N = 2 for each strain)

Strain	<i>Acon-1</i>	<i>Ahd-2</i>	<i>Ahd-C</i>	<i>Akp-1</i>	<i>Alp-1</i>	<i>Br-1</i>	<i>Es-4</i>	<i>Es-10</i>	<i>Fh</i>	<i>Hao-1</i>	<i>Hbb</i>	<i>Pep-3</i>	<i>Pk</i>	<i>AHD-K</i>	<i>AP-R</i>
<i>DA reference</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>s</i>	<i>s</i>
DA	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>s</i>	<i>s</i>
RT7B	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>s</i>	<i>s</i>

Nomenclature for allelic profiles according to Adams *et al.* (1990), "Laboratory protocols for detecting biochemical markers" in "Genetic Monitoring of Inbred Strains of Rat" (ed. H. Hedrich) Gustav Fischer Verlag, Stuttgart.

Conclusions and comments

1. There is no evidence of genetic variability in either of these strains. All individual tested were homozygous for all genetic markers examined.
2. There is no evidence of genetic contamination in either strain. The allelic profiles obtained are identical to previous screens and/or consistent with the published literature.
3. As shown in the table, DA and RT7B possess identical allelic profiles at all genetic markers examined. Such a result is of course expected, given that substrains are usually either congenic or are sublimes of the same original strain. As a result of their near genetic identity, it is usually not possible to detect a cross-contamination event between these substrains using routine genetic monitoring procedures. This highlights the need for (a) the physical separation of substrains so that cross-contamination is not possible, and (b) researchers to institute (where necessary) a reliable monitoring program to confirm the identity of the substrain being used.

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