
Rodent Behaviour – Session 2

Sex and reproductive state discrimination – are they innate or learned? Dwarf hamster species as a model

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It is obvious that sex and reproductive state discrimination (defined as a preference of an opposite sex conspecific and a receptive female, respectively) are the key events in reproduction and serve an appropriate choice of the sexual partner. The experimental data indicate that animals from different taxonomic groups discriminate sex and breeding condition of a potential partner via chemical signals and prefer odors from an opposite sex conspecifics and receptive females. However, it is still unclear whether such behavioral responses are innate. This study was conducted to clarify this question. Three species of the *Phodopus* genus – the Djungarian hamsters (*Phodopus sungorus*) (SH), the Campbell's hamsters (*Phodopus campbelli*) (CH) and the desert hamsters (*Phodopus roborovskii*) (DH) were used as a suitable model group. The taxonomic distance between the three species differs. SH and CH are closely related and produce the hybrids, as DH differs significantly from them and never breed successfully with any of them. All three species demonstrate sex and reproductive state discrimination via conspecific urine. SH and CH may discriminate sex but not the reproductive state of closely related species. Males of both species demonstrated discrimination of females reproductive state after sexual experience with the heterospecific female. Neither of these species discriminates sex and the reproductive state of DH. Crossfostering hamsters of all three species demonstrate the preference of the odors of opposite sex donors of the foster species and could discriminate breeding condition of a female. The data indicate that in dwarf hamsters the ability to discriminate sex and female reproductive state - dependent on a taxonomic distance between species - and that these behavioral patterns are not innate but learnt during an early postnatal ontogenesis.

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6th International Conference of Rodent
Biology and Management
and
16th Rodens et Spatium

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