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DJUNGARIAN HAMSTER AND/OR SIBERIAN HAMSTER: WHO IS WHO?

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Colleagues keep asking me about the correct common name of *Phodopus sungorus*. Is it the Djungarian hamster or the Siberian hamster or the Striped hairy-footed hamster? And what about *Phodopus campbelli*, is it the Djungarian hamster or Campbell's hamster, or what? In fact, there is considerable confusion also in the literature concerning the common names for two of the now recognized three main species of the genus *Phodopus*, namely *Phodopus sungorus* (Pallas, 1773) and *Phodopus campbelli* (Thomas, 1905). The third species, *Phodopus roborovski* (Satunin, 1903), the ”Desert hamster”, is rarely used as a laboratory animal and is so different in its habitus from the two other *Phodopus* species that it cannot be mistaken (Ross 1994). In contrast, *P. sungorus* and *P. campbelli* are looking very similar to the unexperienced eye and I have visited several labs where colleagues claimed to have a colony of *P. sungorus* but instead it turned out to be *P. campbelli*. And in publications - even from the same laboratory - one can find both common names ”Djungarian hamster” and ”Siberian hamster” for *P. sungorus* as well as for *P. campbelli*.

In the late 1960s a Chech scientist, Dr. Figala, came to the laboratory of Prof. Aschoff at the Max-Planck-Institute Andechs (Germany) on a ”von Humboldt stipend”. He brought with him two breeding pairs of *Phodopus sungorus*, started a colony and in collaboration with Goldau and Klaus Hoffmann made initial observations on seasonal changes in body weight, fur color and the occurrence of torpor in this dwarf hamster (Figala et al. 1968). Dr. Klaus Hoffmann soon realized the great potential of *Phodopus* and he deserves the merits of having introduced this hamster species as a very valuable animal model for pineal research (for a review see Steinlechner and Niklowitz 1992). Dr. Hoffmann was generous enough to give hamsters away to colleagues and by 1980 there were many laboratories all over the world working with *Phodopus* from Hoffmann's stock or other sources.

At the time Klaus Hoffmann started his work *Phodopus sungorus* was considered to exist in two different geographical races: the nominate form of *Phodopus sungorus sungorus*, a north-western subspecies which turns white in winter, and *Phodopus sungorus campbelli* in the south-east of the distrubution range which does not change its fur color in winter (Argyropulo 1933, Veselovski and Grundova 1964, Flint 1966). The generic name *Phodopus* was

introduced by Miller (1910) and is derived from *phodos*, the genitive case of the Greek *phos*, meaning blister, and the Greek *pous*, meaning foot. It refers to the large coalesced pad on the plantar surface of each foot (Ross, 1994, 1995). The species name given by Pallas (1773) refers to the region ”Sungaria” (different spellings exist: Dsungaria or Djungaria or Zungaria, see map), south of the Altai mountains. The literal translation of the nominate form therefore is: ”the blister-footed (D)Sungarian (hamster)”. Since Hoffmann clearly worked with the nominate form, he consequently called it (as did most others before him, e.g.Veselovski and Grundova 1964, Flint 1966) the Djungarian hamster. The alternative name existing in the (English) literature at that time was the ”Hairy-footed hamster” (Ellerman and Morrison-Scott, 1951). Never (at least to my knowledge) was it called the ”Siberian hamster”. The other subspecies *P. sungorus campbelli* was named in honour of W.C. Campbell, who collected the type specimen in Inner Mongolia in 1902 (Ross 1995).

Already back in 1967 Vorontsov et al. reported differences in chromosome morphology of both hamsters and in 1979 Yudin et al. showed that cross breeding produced sterile male offspring (however, female offspring often is fertil, Stetson, pers. comm.). These papers by Vorontsov et al. and Yudin et al. were written in Russian and hence did not receive due attention for a long time. *Phodopus campbelli* received its present taxonomic status as a separate species in 1984 (Corbet, 1984). All those who worked with both species of *Phodopus* will certainly agree that there are major behavioral and morphological differences meriting the separation. Dr. K.W. Wynne-Edwards sucessfully trapped both hamster species in the (at that time, i.e. early 1980s) U.S.S.R. and worked with both species in the field as well as in the lab. To my kowledge, Wynne-Edwards and Lisk (1984, 1987) were the first to name *Phodopus sungorus* the Siberian hamster and *Phodopus campbelli* the Djungarian hamster. Subsequently, many (especially American) colleagues and even the American Society of Mammalogists (see Ross 1995) and the British Museum of Natural History (Corbet and Hill, 1986) followed this suggestion. Although there are no strikt rules for nomenclature for common names, this choice for the common names is in my view very unfortunate and has led to the present major confusion. Admittedly, *Phodopus campbelli* has its center of distribution south-east of the Altai mountains (Region of Djungaria) but especially Mongolia, whereas *Phodopus sungorus* originates from south-west Siberia and north-east Kazakstan, making the common names quite logic. Even more logic would have been ”Mongolian hamster” for *P. campbelli* and ”Kasak hamster” for *P. sungorus* if the type locality (see below) played a role. On the other hand, I think it is terribly misleading that a former subspecies is now called by the common name of the nominate form. I am convinced that it would have avoided confusion if the nominate form *Phodopus sungorus* had retained its original common name, i.e. Djungarian hamster. It is the newly acknowledged species

which should get a new name. Another logic name would have been ”Campbell's hamster”. I have used the common name Djungarian hamster for *Phodopus sungorus* in all my publications since 1977 and I see no good reason to change this habit.

As I said before, there are no strikt rules for the use of common names, however, there are indeed strikt rules for the use of scientific names. No editor should accept papers in which only the common name is given. The use of only the common names has led to misunderstandings, misinterpretations and even awful mistakes. Therefore, I can only higly recommend, and in fact urge, all colleagues to use the scientific name which designates the species beyond all doubt. This requires of course that you know for sure which species you are working with. The following short characterization of both species may help to achieve this certainty:

Fig. 1: Map of Inner Asia showing the home land of *Phodopus sungorus* and *Phodopus campbelli* (details and names see text). Adapted from Ellermann and Morrison-Scott (1951).

Phodopus sungorus:
This is the preferred species for studies on circadian and seasonal rhythms and for pineal research! During summer (i.e. long photoperiod), the pelage of *P. sungorus* is dark greyish brown on the back and head with a black mid-dorsal stripe. The fur on the underside is whitish to light grey. In winter (short photoperiod) *P. sungorus* turns more or less completely white, except for the mid-dorsal stripe. This color change is by far the best diagnosis of *P. sungorus*.
Body mass: in summer 35 g - 45 g, in winter 25 g - 30 g
Distribution: E. Kazakstan and S.W. Siberia, the Baraba Steppe (see map).
Type Locality: E. Kazakstan, 100 km west of Semipalatinsk, near Grachevsk.

Phodopus campbelli:
Similar size as *P. sungorus*. Pelage more dark brown as compared to *P. sungorus* and underside slate grey. A suffusion of yellow or buffy on the dividing line between the dorsal and ventral pelage. Mid-dorsal stripe narrower and more sharply defined (see Ross 1995, for a complete description). No color change in winter (short photoperiod)! Usually more aggressive than *P. sungorus*.
Distribution: Steppes and semi-deserts of central Asia: Altai Mountains, Region of Tuva, Transbaikalia, Mongolia.
Type Locality: ”Shaborte” N.E. Mongolia (about 42°40' N; 116°20' E). The reported coordinates are approximate and vary between authors because ”Shaborte” is not a geographic locality but a Mongolian name for a mud lake that dries out periodically (Argyropulo, 1933).

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