



Heater Organs in Marsupials

[Source: Science](#)

Recent research reveals that around 100 million years ago, [placental mammals](#) developed brown fat to survive cold and spread worldwide, and this [fat](#) evolved only in modern placental mammals.

- **Placentals are mammals** excluding marsupials and monotremes, and they form one of the three main groups of living mammals, alongside **Monotremata and Marsupialia**.
- **Marsupials** are the group of mammals commonly thought of as **pouched mammals**.
- They give live birth, but they **do not have long gestation** times like **placental mammals**.
- They are **quite structurally diverse and** range from **small four-footed forms** like the marsupial mole, *Notoryctes*, to the **large two-legged kangaroos**.
- [Marsupials](#), which diverged from placental mammals about 120-180 million years ago, possess a less developed form of brown fat.
- **Brown fat/Brown adipose tissue (BAT)** is an exquisitely designed **tissue/organ** system that has evolved for the maintenance of body temperature.
- **Brown fat's ability to burn fat and sugars to produce heat** has implications for treating obesity, diabetes, and other metabolic disorders.

Feature	Marsupial animals	Placental mammals
Placenta	Small and simple placenta	Large and complex placenta
Scrotum	Present in the front of penis	Present behind the penis
Marsupium	Present	Absent
Teeth	Monophyodont (one set of teeth)	Diphyodont (two sets of teeth: baby and adult)
Corpus callosum	Lack	Have
Development of Young	Delivered without complete development	Developed but immature at the time of delivery

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