

Date: Tuesday 31 October, 2017  
Time: 11:55 – 12:40  
Room: Seminar Room

## **Body temperature and immune defence**

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The first line of defence against invading pathogens, the acute phase response of the vertebrate immune system, involves a suit of behavioural and physiological responses, collectively called sickness behaviours. In mammals, this response is often characterized by a rapid, metabolically costly onset of fever. The use of fever in birds is much less known. It seems as if “large” birds, e.g. ducks also attain fever but results from small passerines are much more variable. This might be due to the much more flexible body temperature regulation of small birds. A roosting blue tit during winter may decrease its body temperature by around 8 °C to reduce the energy expenditures during a time with restricted access to food and low ambient temperatures. We found that the acute phase response did not induce fever during these circumstances as the birds did not increase their body temperature above daytime values. However, they had higher body temperatures than control birds roosting in the same ambient temperature environment. Furthermore, during the day they reduced body temperature and these different strategies will be discussed in the light of making full use of energy savings during night and avoid being overheated during the day. Another, hypothesis considered is the potential for a span of body temperatures where the function of other parts of the immune reaction would be optimized.