

## **Dietary effect on immunological energetics in mice**

Martel, S. I., Riquelme, S. A., Kalergis, A. M., & Bozinovic, F. (2014). Dietary effect on immunological energetics in mice. *Journal of Comparative Physiology B*, 184(7), 937-944. <10.1007/s00360-014-0852-x> Accessed 24 Oct 2022.

### **Abstract**

Defense against natural aggressors, such as bacterial infections, requires both energy and an immune-cellular response. However, the question as to how these two components are interconnected in small endotherms by means of the host diet remains only poorly understood. Here, we tested in laboratory mice whether dietary proteins and carbohydrates can modulate the interplay between energy expenditure, food intake and the innate and adaptive immune response when confronting a bacterial challenge (*Bacillus Calmette-Guérin*, BCG). We observed that mice fed with a high protein diet (HP) developed a better immune response associated to increased numbers of circulating monocytes. In addition, HP diet directly influenced the peripheral blood proportions of both T and B lymphocytes even before the BCG challenge. Interestingly, animals that developed this type of immune response after BCG challenge showed an increased rate of metabolism and food consumption before being challenged. Thus, HP diet induced in non-challenged animals a similar energy expenditure and food intake described by BCG-treated mice. These data suggest that a high amount of proteins in diet can modify the energetic and nutrient dynamic in the host causing a better immune reaction against a microbial challenge.

### **Keywords**

Ecoimmunology, Food intake, Energy expenditure, Immune-cellular response, Small mammals.