

Immunology needs the mind

To the editor:

As a neuroimmunologist working in the field of research, I appreciated the review entitled 'Elaborate interactions between the immune and the nervous systems'¹. I appreciated it all the more because immunology journals and immunologists in general tend to be somewhat disturbed by evidence that the two main adaptive systems of the body, the brain and the immune system, operate by continuous crosstalk to maintain homeostasis. Perhaps this is because both the nervous and the immune systems themselves are extremely complex and function through mechanisms not yet completely understood. Early during my scientific career, a common referee response to my grant applications or manuscripts sounded like this: "The immune system is already very complex. I see no interest or benefit in adding new and fancy intricacies." Nature obviously had a different idea about the physiology of the immune and nervous systems.

This skeptical and conservative attitude had the following consequences. First, most

scientists interested in neuroimmune interactions had to form new scientific societies such as the International Society for Neuroimmunomodulation or the Psychoneuroimmunology Research Society and had to fund journals such as *NeuroImmunoModulation* (Karger) or *Brain, Behavior and Immunity* (Academic Press). Both the societies and the journals provided the necessary platform for debate but contributed somewhat to the segregation of immunology research. Second, a scientifically undeserved chronic underestimation of the research field in most immunology journals resulted: few papers and few reviews are published, and the latter often offer only a partial picture of the state of the research. The above-mentioned review¹, for example, ignored important neuroimmune interactions such as those of the hypothalamic-pituitary-gonadal axis and of the pineal gland.

A search of PubMed using key words such as 'nervous' and 'immune', limited to reviews in the last 5 years, returned 1,064

results, only 90 (8.4%) of which were published in immunology journals. More focused searches using as key words 'hypothalamo-pituitary-adrenal' and 'immune' or 'sympathetic' and 'immune' returned 116 and 106 results, respectively. In the former search, immunology journals accounted for 9.2% of the periodicals and in the latter, 7.4%. It should be noted that this impermeability to neuroimmune studies seems to be peculiar to immunology journals, as the reviews published in non-immunology journals are more or less equally distributed among various biomedical research fields. This situation perpetuates a cultural separation that is most detrimental for the advancement of immunology.

Georges Maestroni

Istituto Cantonale di Patologia, Center for Experimental Pathology, PO Box, Locarno 6601, Switzerland.

e-mail: georges.maestroni@ti.ch

1. Steinman, L. *Nat. Immunol.* **5**, 575–581 (2004).