



## Effects of new antiepileptic drugs and progabide on the mitogen-induced proliferative activity of mouse splenocytes

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### Abstract:

Classical antiepileptic drugs are known to affect immune system activity, although the effects of new generation anticonvulsants on T- and B-cell-mediated immunity remain unknown. Therefore, in the present study, we compared a selection of new antiepileptic drugs with classical ones in terms of their effects on the proliferative activity of lymphocytes stimulated by concanavalin A (Con A) and lipopolysaccharide (LPS). Felbamate ( $3 \times 10^{-6}$  –  $10^{-4}$  M) was the most potent in inhibiting [<sup>3</sup>H]-thymidine incorporation in C57BL/6 mouse spleen cells stimulated by Con A and LPS. Treatment of the cells with stiripentol ( $3 \times 10^{-5}$  and  $10^{-4}$  M) and loreclezole ( $10^{-4}$  M) suppressed the proliferative activity of splenocytes both after Con A and LPS stimulation. Tiagabine ( $3 \times 10^{-5}$  M and  $10^{-4}$  M) inhibited the Con A-induced cell proliferation, whereas the effect of LPS was attenuated only by the highest concentration of this drug ( $10^{-4}$  M). Progabide showed immunosuppressive effects at concentrations of  $3 \times 10^{-5}$  and  $10^{-4}$  M or only  $10^{-4}$  M after LPS or Con A stimulation, respectively. No effect on the immune parameters was observed after lamotrigine treatment. On the other hand, the Con A-induced proliferation of splenocytes was enhanced by carbamazepine ( $10^{-5}$  –  $10^{-4}$  M) and sodium valproate ( $5 \times 10^{-4}$  –  $3 \times 10^{-3}$  M). Neither carbamazepine nor sodium valproate affected the LPS-induced proliferation. These data indicate that some new antiepileptic drugs, especially felbamate at pharmacological concentrations, may suppress the mitogen-stimulated proliferative activity of mouse splenocytes. In contrast, two classical anticonvulsants (carbamazepine and sodium valproate) stimulated T-cell-mediated immunity. The above differences in the effects of particular antiepileptic drugs on the immune response may play roles in both their therapeutic efficiency and undesired effects.

### Key words:

antiepileptic drugs, mitogens, proliferative activity of splenocytes

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