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## Inhibition of protein kinase CK2 ameliorates EAE by regulating Th17/Treg cell development

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Autoimmune diseases are controlled by the balance between T helper 17 (Th17) cells, which promote inflammatory reactions, and regulatory T (Treg) cells, which suppress effector T cells. However, the molecular mechanisms underlying this balance are unclear. Here, we showed that casein kinase 2 (CK2) is a critical determinant of the Th17/Treg cell development. Inhibition of CK2 with a specific inhibitor, CX-4945, and shRNA-mediated knockdown both suppressed Th17 cell differentiation but reciprocally promoted Treg cell differentiation *in vitro*. Moreover, orally treated CX-4945 ameliorated symptoms of experimental autoimmune encephalomyelitis (EAE) and inhibited Th17 cell infiltration into the central nervous system (CNS). Mechanistically, CX-4945 blocked the IL-6/STAT3 and Akt/mTOR signaling pathways.

### Biography

Sung Woong Jang is a Graduate student of Sogang University, Seoul, Korea and is studying CD4 T cell differentiation in Molecular Immunology Lab of Sogang University, under Prof. Gap Ryol Lee.

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