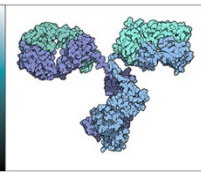

Research Highlight

Bio Cell

Naïve T cells switch to one-carbon metabolism upon activation

Marcia C. Haigis's group from the Department of Cell Biology at Harvard Medical School have discovered that CD4 T cell activation requires a unique program of mitochondrial biogenesisis.

Using mass spectrometry, the authors investigated protein dynamics during T cell activation both *in vitro* and *in vivo*. They identified substantial remodeling of the mitochondrial proteome which generated mitochondria with highly induced one carbon metabolism fed by serine.

Using an *in vitro* model of T cell activation and genetic knock-down of serine hydroxymethyltransferase (SHMT2) as well as a mouse model consisting of adoptive transfer of wild-type T cells and T cells with knock-down of SHMT2 the authors found that genetic inhibition of SHMT2 impaired T cell survival in culture and antigen-specific T cell abundance *in vivo*. This research defines a program of mitochondrial proteome remodeling and biogenesis which is critical for T cell survival and proliferation.

To accomplish this research, the authors used Bio X Cell's anti-mouse CD3ε (clone 145-2C11) and anti-mouse CD28 (clone 37.51) antibodies to stimulate the activation and proliferation of CD4 T cells *in vitro*.

See the article in Cell Metabolism: http://www.cell.com/cell-metabolism/abstract/S1550-4131(16)30293-5