



# Detection of serum anti-melanocyte antibodies and identification of related antigens in patients with vitiligo

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**ABSTRACT.** We detected autoantibodies against melanocytes in serum samples obtained from 50 patients, including 4 with HBV, with vitiligo and identified the associated membrane antigens. Heat shock protein 70 (HSP70) and anti-tyrosinase-related protein 1 (TRP-1) antibody levels were analyzed. The associated antigens in normal human melanocyte were identified by immunofluorescence. Autoantibodies against melanocyte membrane and cytoplasmic proteins were detected by western blot. Membrane antigens with higher frequencies were identified by protein mass spectrometry. The HSP70 and anti-TRP-1 antibody levels (N = 70; 10 with HBV) were detected by ELISA. The specific antigens were detected in melanocyte cytoplasm and membrane (40/50; 80% incidence; western blot). The autoantibodies reacted with several membrane antigens with approximate molecular weights (Mr) of 86,000, 75,000, 60,000, 52,000, and 44,000 (strip positive rates: 36, 58, 22, 2, and 2%, respectively). Thirty percent of the patients showed the presence of cytoplasmic antigens (Mr: 110,000, 90,000, 75,000, 50,000, and 400,000; strip positive rates: 12, 4, 12, 10, and 2%, respectively). Fifteen and 5% of the healthy subjects

showed positive expression of membrane and cytoplasmic antigens, respectively. Protein mass spectrometry predicted membrane proteins with Mr of 86,000 and 75,000 and 60,000 to be Lamin A /C and Vimentin X1, respective. High titers of anti-TRP-1 antibody were detected and showed positive correlation with HSP70 ( $r = 0.927$ ,  $P < 0.01$ ). This study identified a novel membrane antigen associated with vitiligo, which might assist future investigations into autoimmune pathogenesis of vitiligo and formation of autoantibodies. HBV infection was correlated to vitiligo.

**Key words:** Vitiligo; Melanocytes; Autoantigen; Autoantibody; Hepatitis B virus; Heat shock protein 70