AB007. Protein therapy to regenerate erectile tissue for future management of erectile dysfunction

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Abstract: Oral phosphodiesterase type 5 inhibitor, including sildenafil citrate, are well utilized as first-line therapy because those are effective and convenient for the majority of erectile dysfunction (ED) patients. However, there is a need for increased treatment efficacy for patients with ED. These oral therapies have failed in ED patients due to diabetes, radical prostatectomy, severe vascular dysfunction, etc. Moreover, every currently approved non-surgical treatment option for ED requires planning prior to intercourse. A variety of strategies to regenerate erectile tissue by intracavernous delivery of genes or cells have been introduced to restore erectile function at the preclinical level. Of those, we have paid much attention to target master signal transduction to proliferate cavernous endothelial cells or pericytes and resultantly to regenerate diseased penis. Previously, we targeted ninjurin1 protein, cell adhesion molecule, and developed anti-ninjurin-1 neutralizing antibody to evaluate its effectiveness in the mouse model of diabetic or nerve injury-induced ED. Recently, we developed a recombinant protein of Dickkopf-2, Wnt antagonist, which is known to promote angiogenesis in the blood vessel. We found that this recombinant protein is highly promising for future treatment of ED through our intensive preclinical researches in the mouse model of refractory ED. Vasohibin-1 protein or anti-ProNGF antibody as potential therapeutics for ED is also on the way of evaluation, respectively. In this session, we will show whether and how these recombinant protein or antibody to regenerate erectile tissue and restore erectile function in those animal models with refractory ED, and whether those are applicable in the treatment of refractory ED in a near future.

Keywords: Erectile dysfunction (ED); intracavernous delivery; pericytes; cavernous endothelial cells; penis

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