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Stimulation of Candida albicans transition by human chorionic gonadotrophin and a bacterial protein.

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Abstract

Candida albicans, a dimorphic fungus, is involved commonly in human infections with the mycelium form more associated with pathogenicity. The influence of various hormones and a bacterial protein on the transition from blastospore to mycelium was assessed. Human luteinizing hormone (hLH), chorionic gonadotrophin (hCG), and an hCG-like material purified from a bacteria, Xanthomonas maltophilia (PCG), were able to increase the rate of transition when compared with the controls. The effect of the two hormones and the bacterial peptide were specific, as human follicle stimulating hormone (hFSH), thyroid stimulating hormone (hTSH), growth hormone (hGH), prolactin (hPrl) and rat and bovine LH (rLH, bLH), and bovine albumin and gamma globulin did not affect the transition. The binding of 125I-hCG or 125I-LH to spheroplasts of Candida albicans were competitively displaced by hCG, hLH, and PCG. Scatchard analysis of binding of all three ligands revealed two binding sites with a high-affinity nM Kd. Thus, hCG, hLH, and PCG induce transition of Candida albicans from a blastospore state to a mycelium form, suggesting that these hormones may modify the pathogenicity of Candida albicans.

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