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(54) Title: PROPIONIBACTERIUM ACNES PROPHYLACTIC AND THERAPEUTIC IMMUNE TREATMENT

(57) Abstract: The present invention discloses a vaccine comprising one or more of Dermatan sulfate-binding adhesin 1 of *P. acnes* (DsA1 polypeptide), Dermatan sulfate-binding adhesin 2 of *P. acnes* (DsA2 polypeptide), and putative iron-transport protein (PITP) polypeptide of *P. acnes*, and/or a fragment and/or derivative of DsA1 and/or DsA2 and/or PITP, wherein the DsA1 polypeptide and the DsA2 polypeptide comprise from N- to C-terminus an N-terminal swapping region ("NSR"), a first conserved sub-domain ("CSD1"), a first swapping region ("SR1"), a second conserved sub-domain ("CSD2"), a second swapping region ("SR2"), a third conserved sub-domain ("CSD3"), a Pro-Thr repeat containing region ("PT repeat region"), and a C-terminal region ("CTR"), and wherein the PITP polypeptide comprises from N- to C-terminus an extended neocarzinostatin family domain ("ENFD"), a first swapping region ("SR1"), a heme-binding domain ("HbD"), a second swapping region ("SR2") including the C-terminal LPXTG motif, and a hydrophobic C-terminal region ("hLAR").



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