REDUCING RISKS WITH A SERUM-FREE MEDIUM FOR MRC-5 BASED VACCINE PRODUCTION

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The World Health Organization has set limits to the amount of bovine serum albumin (BSA) in vaccines to 50ng/dose. Vaccines that are produced with MRC-5 or other diploid cells are cultured in classical medium with bovine serum. Fetal bovine serum contains on average 23g/L BSA which adds a burden to downstream vaccine formulation. To reduce risks associated with bovine sera, we have developed an animal origin-free vaccine production medium for diploid cells. The medium is paired with a serum-free growth medium that supports direct recovery from thaw and adaptation-free expansion, while resulting in performance that is comparable to serum-containing medium. We confirmed virus production with varicella zoster virus and vesicular stomatitis virus (as an analog to rabies virus) and demonstrated titers that were up to one log higher than classical medium control cultures. Taken together, we have developed a workflow for diploid cells consisting of a serum-free medium for growth and an animal origin-free medium for virus production. By switching to a serum-free process, vaccine manufacturers can reduce dependency on serum, production and purification costs, and increase product consistency and safety.