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SPATIAL EXPERIMENT TECHNOLOGIES SUITABLE FOR UNRETURNABLE BIOREACTOR

Abstract

The system composition and main function of the unreturnable bioreactor piggybacked on TZ cargo transport spacecraft are introduced briefly in the paper. The spatial experiment technologies which are suitable for unreturnable bioreactor are described in detail, including standard cell culture unit designment, multi-channel liquid transportation and management, multi-type animal cells circuit testing, dynamic targets microscopic observation in situ etc.. The feasibility and effectiveness of these technologies will be used in space experiment in unreturnable bioreactor are verified in tests and experiments on the ground. 33 days space flight experiment of the unreturnable bioreactor has been finished in 2017. A rich supply of experiment data and real-time microscopic images have been gained. The regulation of spatial experiment process has been realized with remote operation mode. Related spatial experiment technologies have been validated.