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Current status and prospect for organoid based regenerative medicine

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Lecture : Organoids derived from stem cells or organ-specific progenitors are self-organizable, self-renewable, and multicellular three-dimensional (3D) structures that can mimic the function and structure of the derived tissue. Due to such characteristics, organoids are attracting attention as an excellent ex vivo model for drug screening at the stage of drug development. In addition, since the applicability of organoids as therapeutics for tissue regeneration has been embossed, the development of various organoids-based regenerative medicine has been rapidly progressing, reaching the clinical trial stage. In this review, we give a general overview of organoids and describe current status and prospects of organoid-based regenerative medicine, focusing on organoid-based regenerative therapeutics currently under development including clinical trials.