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(54) **INJECTABLE IN-SITU CROSSLINKED HYDROGEL AND METHODS OF MAKING AND USING THEREOF**

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(58) **Field of Classification Search**

None

See application file for complete search history.

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(57) **ABSTRACT**

The present invention discloses an injectable in-situ crosslinked hydrogel and its preparation method. The preparation method is as below: Filling the crosslinking active solution of at least one kind of the biocompatible macromolecules containing more than two thiol groups on the side chains into an injectable container and sealing it, and forming the in-situ disulfide-bond crosslinked hydrogel under the action of the dissolved oxygen; through controlling such parameters as partial pressure of oxygen gas, temperature and time, regulating concentration of the oxygen dissolved in the crosslinking active solution, and optimizing the gelation process and the gel properties. The present invention further relates to application of the injectable in-situ crosslinked hydrogel in pharmaceutics or surgery. The present invention has many advantages, such as no need for a crosslinking agent, simple preparation process, convenient application, containing no impurities, good biocompatibility, no toxic and side effect, and wide application in the medical science.

21 Claims, No Drawings