

## Biocompatible chitosan and dextran based self-healing hydrogel for complex 3D cell culture system

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Self-healing hydrogel has excellent stability because it has a capability of autonomous self-healing and self-recovery, allowing them to return to its normal state even if stimulated by hydrogels. These properties can allow it to be used in complex and extreme environments such as in vivo, and thus various studies have been conducted as potential materials in areas such as biomedical, tissue engineering, cell therapy and wound healing. So, we would like to present a chitosan and dextran-based self-healing hydrogel that is bio-friendly, rapid self-healing, fast gelation, and cell culture in 3D. Chitosan and dextran are natural macromolecules because they are naturally derived ingredients, especially chitosan, which is similar to ECM, providing a good environment for cell culture. These characteristics can provide an environment in which cells can grow well in vivo, and because of their self-healing ability, they can freely assemble the scaffold, and self-healing for minor wounds like real tissues is possible. Based on study, it seems that it can be used as a scaffold for 3D cell culture because it can easily make a tissue-like structure, non-toxic, and allows cell encapsulation.