

# Accepted Manuscript

Programmable Hydrogels

Yong Wang



PII: S0142-9612(18)30167-4  
DOI: 10.1016/j.biomaterials.2018.03.008  
Reference: JBMT 18534  
To appear in: *Biomaterials*  
Received Date: 05 February 2018  
Revised Date: 25 February 2018  
Accepted Date: 04 March 2018

Please cite this article as: Yong Wang, Programmable Hydrogels, *Biomaterials* (2018), doi: 10.1016/j.biomaterials.2018.03.008

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Programmable Hydrogels

Yong Wang

Department of Biomedical Engineering  
The Pennsylvania State University  
University Park, PA 16802  
E-mail: [yxw30@psu.edu](mailto:yxw30@psu.edu)  
Fax: 814-863-0490  
Phone: 814-865-6867

**Abstract.** Programmable hydrogels are defined as hydrogels that are able to change their properties and functions periodically, reversibly and/or sequentially on demand. They are different from those responsive hydrogels whose changes are passive or cannot be stopped or reversed once started and vice versa. The purpose of this review is to summarize major progress in developing programmable hydrogels from the viewpoints of principles, functions and biomedical applications. The principles are first introduced in three categories including biological, chemical and physical stimulation. With the stimulation, programmable hydrogels can undergo functional changes in dimension, mechanical support, cell attachment and molecular sequestration, which are introduced in the middle of this review. The last section is focused on the introduction and discussion of four biomedical applications including mechanistic studies in mechanobiology, tissue engineering, cell separation and protein delivery.

Download English Version:

<https://daneshyari.com/en/article/6484411>

Download Persian Version:

<https://daneshyari.com/article/6484411>

[Daneshyari.com](https://daneshyari.com)