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1                   **AJP-Cell Physiology starts a Theme of Reviews on “Tissue**  
2                   **Remodelling: From Regeneration to Fibrosis”**

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14 Keywords: regeneration, repair, stem cells, cancer, matricellular

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16 Text

17 In this issue, *AJP-Cell Physiology* begins publication of a set of Reviews on  
18 the Theme of “Tissue Remodelling: From Regeneration to Fibrosis”. We focus  
19 on tissue remodelling as a fundamental attribute of animal physiology that has  
20 crucial roles from the earliest stages of embryonic development onwards. Cell  
21 movements and morphological changes have essential roles in the  
22 development of the single fertilised egg cell to a multi-cellular embryo with a  
23 full complement of distinct organs. Throughout post-natal life, tissue  
24 remodelling is central to homeostatic physiological processes within organs  
25 and responses to environmental challenges, as seen in wound repair and the  
26 innate and adaptive immune responses. In relation to this multiplicity of roles,  
27 excessive, inappropriate, or reduced tissue remodelling occurs in disease  
28 pathologies ranging from joint degeneration, atherosclerosis, or cancer  
29 invasion and metastasis to all forms of tissue fibrosis.

30  
31 The cell interactions that form the basis of tissue remodelling are coordinated  
32 by chemical and mechanical cues that drive intracellular signalling pathways,  
33 cytoskeletal organisation, gene expression profiles and post-transcriptional  
34 regulation of gene expression by microRNAs and other mechanisms [2,3].  
35 This theme of Reviews highlights the roles of extracellular factors in tissue  
36 remodelling, with special attention to the matricellular group of extracellular  
37 matrix proteins. Matricellular proteins have modulatory roles in the  
38 extracellular milieu through binding interactions with cell-surface receptors  
39 and structural extracellular matrix proteins including collagens and fibronectin,  
40 and may also localise or regulate the activity of growth factors or cytokines  
41 [1,7]. Coordinated studies of gene-knockout mice and cultured cells have  
42 revealed complex mechanisms by which individual members of the  
43 matricellular family have important roles in stem cell physiology and/or  
44 homeostatic tissue remodelling, or act to either restrain or drive fibrotic  
45 processes. Because matricellular proteins tend to be of low abundance and  
46 are not structural components of the extracellular matrix, these findings have  
47 raised strong interest in these proteins as potential therapeutic targets.

48  
49 This issue opens the theme with a set of Reviews from leaders in the field that  
50 survey pathophysiological roles of cellular communication network (CCN)

51 proteins [5], and contrast the activities of periostin in physiological wound-  
52 repair versus pathological fibrosis [6]. Of course, not all cues in tissue  
53 remodelling come from proteins, and the role of bioactive sphingolipids in liver  
54 disease and liver fibrosis is also discussed in this issue [4].

55  
56 We thank all the authors of these Reviews, and the others yet to be published,  
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58 Reviews in this theme were commissioned in association with an *AJP-Cell*  
59 *Physiology* Editor's Initiative for a "Best Poster Presentation" award at the  
60 2019 FASEB Science Research Conference on Matricellular Proteins in  
61 Inflammation and Tissue Remodeling. We thank the faculty at that  
62 conference, who participated in the poster judging process.

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101 and both approved the final text.  
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