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## Innovation and Translation of Biological and Biomaterial Treatment for Challenging Musculoskeletal Disorders

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Elsevier newly released 2022 CiteScore and JOT has received a record high CiteScore of 9.3 and ranked to top 4% under the Category Orthopaedics and Sports Medicine (<https://www.scopus.com/sourceid/21100829921>). This is definitively an importance index of translational medicine in general and orthopaedics in specific. Innovation and clinical translation are essential in advanced science and engineering that will finally benefit our patients and societies.

In order to develop targeted treatment with good efficacy for injury and disease in the musculoskeletal system, we need to understand molecular and cellular mechanism underlying the bone and joint diseases. In this volume, several relevant works are published with focus on above aspects, including HIF-1 $\alpha$  dependent RhoA as a novel therapeutic target regulates rheumatoid arthritis fibroblast-like synoviocytes migration using not only *in vitro* experimental models [1]; upregulation of AKT/GSK-3 $\beta$ / $\beta$ -catenin signalling is crucial for eurycomanone to stimulate bone mineralization and promote osteogenic differentiation of mesenchymal stem cells using zebrafish model [2]; the role of local sympatholysis on bone-tendon interface healing in a murine rotator cuff repair model [3]; how metformin improved fibroblast metabolism in ameliorating arthrofibrosis using rat model [4]; why depletion of Gli1 can induce oxidative stress and apoptosis of nucleus pulposus cells in intervertebral disc degeneration [5]; Sirt1 protects against intervertebral disc degeneration induced by 1,25-dihydroxyvitamin D insufficiency through inhibition of NF- $\kappa$ B inflammatory pathway using mouse experimental model [6]; how osteocyte  $\beta$ 3 integrin promotes bone mass accrual and force-induced bone formation through establishing relevant experimental model in mice [7]; why down-regulation of the RAGE-JAK2-STAT1 signal axis is a relevant underlying mechanism of metformin in attenuating diabetes-induced osteopenia in rat model [8]; and HMGB1 deubiquitination plays an important role for USP7 to promote osteoclast differentiation of CD14+ human peripheral blood monocytes in osteoporosis [9]. Nevertheless, in the future more efforts shall be made to validate relevant discoveries for moving towards invention and clinical application.

Bioinert, biocompatible or bioactive or degradable materials have been developed and partially been developed to clinical applications in

orthopaedics, now with great acceptance and successes. In this issue, polymer bilayer-Micro arc oxidation surface coating on pure magnesium has been tested as more effective bone implantation in promotion of new bone formation [10]. Platelet-derived extracellular vesicles formulated with hyaluronic acid gels have also been developed for application in enhancing bone-implant interface [11]; and stress stimulation maintained by genipin crosslinked hydrogel has been reported recently to be able to promote annulus fibrosus healing [12].

Scientific research is a foundation in translation medicine. The editorial board members of this Journal are looking forward to seeing the authors' research group will continue their efforts by converting their findings in product development, including those in diagnosis, prevention and treatment for relevant musculoskeletal disorders.

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