### Accepted Manuscript

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PII: S0304-4165(15)00073-2

DOI: doi: 10.1016/j.bbagen.2015.02.011

Reference: BBAGEN 28163

To appear in: BBA - General Subjects

Received date: 12 November 2014 Revised date: 5 February 2015 Accepted date: 20 February 2015



Please cite this article as: Chao Huang, Jingxing Dai, Xin A. Zhang, Environmental Physical Cues Determine the Lineage Specification of Mesenchymal Stem Cells, *BBA* - *General Subjects* (2015), doi: 10.1016/j.bbagen.2015.02.011

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## **ACCEPTED MANUSCRIPT**

# **Environmental Physical Cues Determine the Lineage**Specification of Mesenchymal Stem Cells

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Key words: mesenchymal stem cell, topography, stiffness, cytoskeleton, physical cue

Running title: Biophysical control of differentiation

Abbreviation: 3D, 3-dimesional; BMP, bone morphogenetic protein; ECM, extracellular

matrix; FN, fibronectin; LN, laminin; MLC, myosin light chain; MSC,

mesenchymal stem cell; PAAm, polyarylamide; PDMS,

polydimethylsiloxane; PEG, polyethylene glycol; Rock, Rho-associated

protein kinase.

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