

Corrigendum: “A validated model of the pro- and anti-inflammatory cytokine balancing act in articular cartilage lesion formation”

Xiayi Wang¹, Marc J. Brouillette^{2,3}, Bruce P. Ayati^{1,2,4*} and James A. Martin^{2,3}

¹ Program in Applied Mathematical and Computational Sciences, University of Iowa, Iowa City, IA, USA, ² Department of Orthopaedics and Rehabilitation, University of Iowa, Iowa City, IA, USA, ³ Department of Biomedical Engineering, University of Iowa, Iowa City, IA, USA, ⁴ Department of Mathematics, University of Iowa, Iowa City, IA, USA

Keywords: articular cartilage, structured model, lesion formation and abatement, EPO, IL-6

A corrigendum on

A validated model of the pro- and anti-inflammatory cytokine balancing act in articular cartilage lesion formation

by Wang, X., Brouillette, M. J., Ayati, B. P., and Martin, J. A. (2015). *Front. Bioeng. Biotechnol.* 3:25. doi: 10.3389/fbioe.2015.00025

OPEN ACCESS

Edited by:

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*Correspondence:

Bruce P. Ayati
bruce-ayati@uiowa.edu

Specialty section:

This article was submitted to Biomechanics, a section of the journal *Frontiers in Bioengineering and Biotechnology*

Received: 01 May 2015

Accepted: 08 May 2015

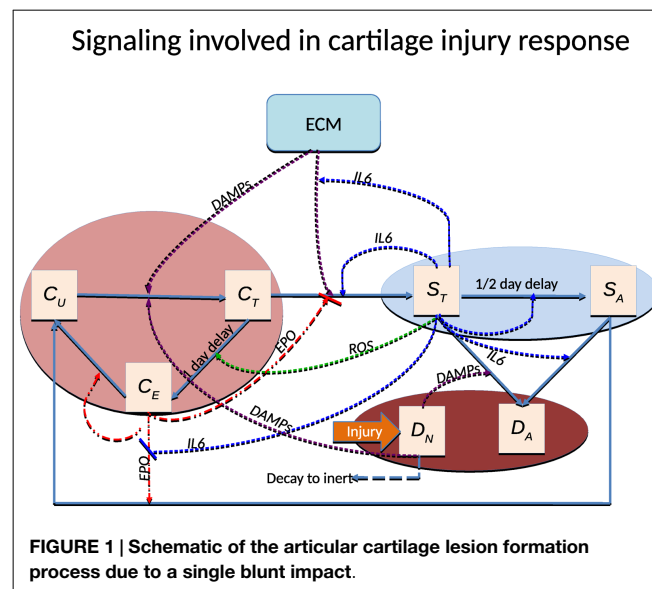
Published: 26 May 2015

Citation:

Wang X, Brouillette MJ, Ayati BP and Martin JA (2015) Corrigendum: “A validated model of the pro- and anti-inflammatory cytokine balancing act in articular cartilage lesion formation”. *Front. Bioeng. Biotechnol.* 3:73. doi: 10.3389/fbioe.2015.00073

There are a number of errors in the original manuscript (Wang et al., 2015) due to the use of incorrect versions of our material during the final manuscript preparation stage. They are

- Figure 1** has the incorrect schematic. The figure in this corrigendum is the schematic that matches the models and simulations in the manuscript.



2. In equation (1b), δ_U should be σ_U .
3. The correct initial condition for ROS is $R(r, 0) = 0$.
4. The Heaviside function is defined incorrectly in equation (2). We use the standard Heaviside function, $H(\theta) = 1$ for $\theta \geq 0$, $H(\theta) = 0$ for $\theta < 0$.
5. In equations (5a) and (6b), the Monod functions that depend on ROS, R , should instead depend on DAMPs, M .
6. The parameter η in equations (8a) and (9) should be κ_1 .
7. The underbraces in equations (8a), (8b), and (9) that indicate dependence on TNF- α specifically should instead indicate dependence on a generic pro-inflammatory cytokine, denoted by F .
8. Equation (8b) does not depend on C_U . In place of C_U in the equation there should instead be implicit multiplication by 1.
9. In Table 2, the correct parameter value for δ_F is 0.1664 and the correct parameter value for δ_P is 0.5545. These were obtained from the derivation in (Wang et al., 2014):

$$\delta_F = -\frac{24}{100 \text{ hour}} \ln\left(\frac{1}{2}\right) = 0.1664/\text{day}, \quad (1)$$

$$\delta_P = -\frac{24}{30 \text{ hour}} \ln\left(\frac{1}{2}\right) = 0.5545/\text{day}. \quad (2)$$

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Here 100 hours is the approximate half-life of TNF- α (Wedlock et al., 1996; Brines and Cerami, 2008) and 30 hours is the approximate half-life of DAMPs and EPO (Ito et al., 2008). To obtain the half-lives from the source literature, we used the “N-end Rule” (Varshavsky, 1997). The similarities in their half-lives are why we have that $\delta_M = \delta_P$. We note that the parameter values in Table 1 of (Wang et al., 2014) are not consistent with the correct values in the body of the text (Wang et al., 2014, pg. 931).

All the simulations in the original manuscript were conducted with these versions of the equations and parameters.

Acknowledgments

The authors thank Georgi Kapitanov for a careful reading of the manuscript and source code. *Funding:* XW, BA, MB, and JM were partially supported by NIAMS grant #1 P50 AR055533. MB was supported by a Merit Review Award from the Department of Veterans Affairs.