

P022 Graded coupling of hyaluronan secretion to joint movement; role of transcription/translation.

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Since HA is arthro-protective, secretion rate \dot{q}_{HA} may be a graded response to movement. We also tested whether the response is mediated by transcription-translation. \dot{q}_{HA} was measured by washout of static or moved joints of anaesthetized rabbits after 5h secretion. HA was analysed by HPLC. \dot{q}_{HA} was normalised per 100 μg endogenous HA (% \dot{q}_{HA}) to reduce variation.

Moved joints were cycled at 0.5Hz for 0, 7%, 20% or 60% of the secretion period (0/1/3/9min in every 15min); or for 20% duration at 0/0.17/0.5/1.5Hz. % duration (static 3.65 ± 0.27 , 7% duration 5.29 ± 0.25 , 20% 7.93 ± 0.50 , 60% $7.82 \pm 0.52 \mu\text{g h}^{-1}(100 \mu\text{g})^{-1}$). % cycle frequency (static 3.65 ± 0.27 , 0.17Hz 4.87 ± 0.49 , 0.5Hz 7.93 ± 0.5 , 1.5Hz $7.27 \pm 0.63 \mu\text{g h}^{-1}(100 \mu\text{g})^{-1}$).

Other moved joints received the translation inhibitor cycloheximide (CX, 0.36mM) or puromycin (PM, 0.3mM) plus actinomycin-D (AD, 11 μM). % \dot{q}_{HA} in CX-treated moved joints ($7.79 \pm 1.55 \mu\text{g h}^{-1}(100 \mu\text{g})^{-1}$) was not statistically different from saline-injected moved joints ($9.37 \pm 2.21 \mu\text{g h}^{-1}(100 \mu\text{g})^{-1}$) ($p=0.12$, $n=5$ pairs), despite positive controls using PMA \pm CX. AM+PM-treated moved joints likewise showed no reduction in % \dot{q}_{HA} . HA secretion thus showed was a graded response to movement duration and frequency. The response was not dependent on transcription-translation.