

## Anti-oxidant and immune-modulatory properties of sulfated alginate derivatives on human chondrocytes and macrophages

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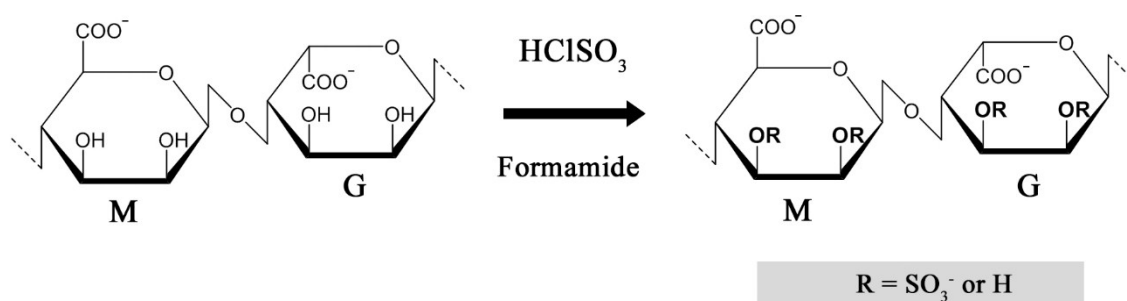
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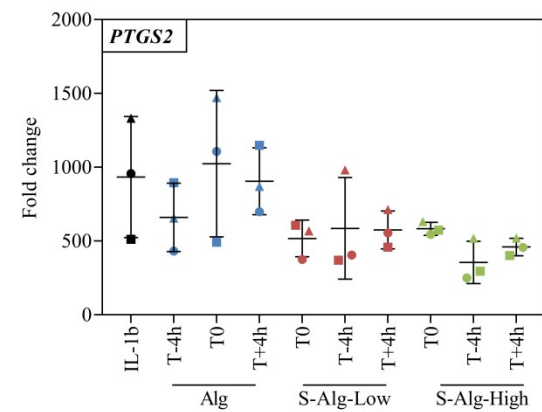
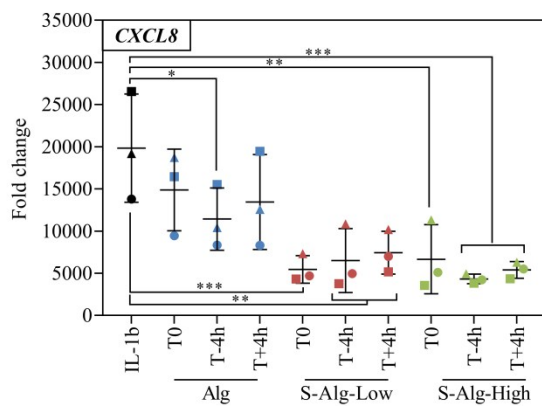
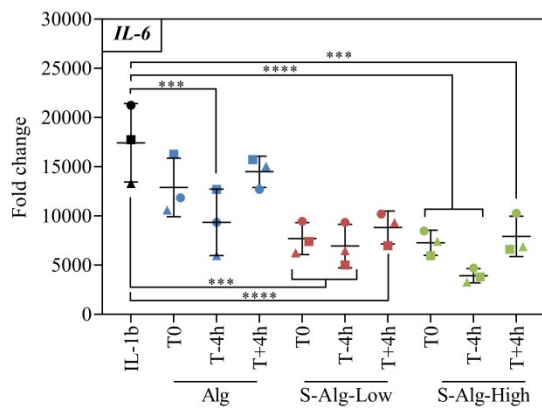
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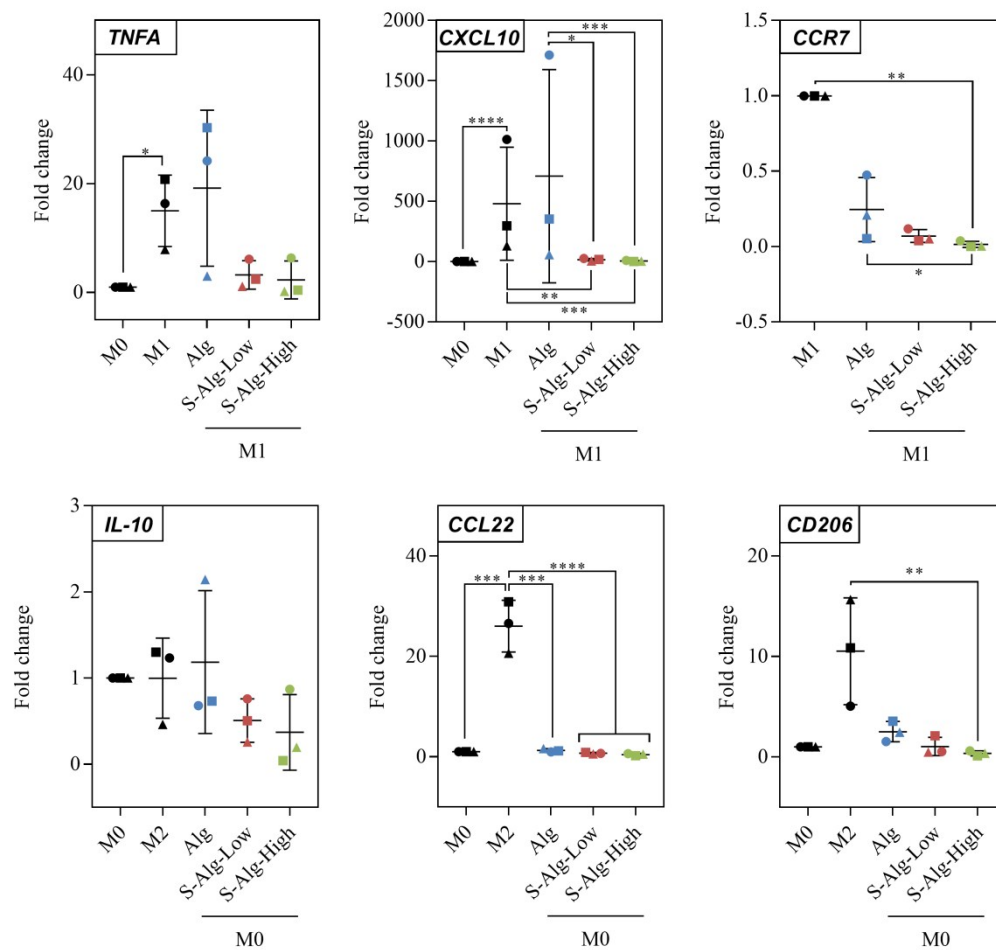
### Supplementary Information



Supplementary Figure S1 Scheme of the chemical reaction to add sulfate groups on alginate



Supplementary Figure S2 RT-PCR results of the inflammatory genes *IL-6*, *CXCL8*, and *PTGS2*, after 24h stimulation of human chondrocytes, from donors M45 (▲), M22 (■), and F48 (●), with IL-1 $\beta$  in presence of alginates. Alg (DS 0), S-Alg-Low (DS 0.48), and S-Alg-High (DS 0.98) were supplemented at the concentration of 0.5% [w/v] to the medium at the time points 4h prior (T-4h), 4h post (T+4h) of IL-1 $\beta$  stimulation as well as simultaneous (T0) to stimulation. At the concentration of 0%, cells were only treated with IL-1 $\beta$ . Shown are results obtained from 3 different human donors. Statistics: Two way ANOVA,  $p < 0.05$ , \*,  $p < 0.01$ , \*\*,  $p < 0.001$ , \*\*\*,  $p < 0.0001$ , \*\*\*\*.



Supplementary Figure S3 RT-PCR results for macrophage polarization at 72h. *TNFA*, *CXCL10*, and *CCR7* are markers for M1-like macrophages whereas *IL-10*, *CCL22*, and *CD206* are markers for M2-like cells. THP1-derived macrophages were polarized towards M1 or M2. Non-polarized (M0) and M1-like cells (M1) were treated with 0.5% [w/v] Alg, S-Alg-Low (SD 0.48), and S-Alg-High (SD 0.98). For each transcript, the data points were normalized to M0 condition, except for *CCR7* for which data points were normalized to M1 condition. Shown are three experimental replicates. Statistics: One-way ANOVA,  $p < 0.05$ , \*;  $p < 0.01$ , \*\*;  $p < 0.001$ , \*\*\*;  $p < 0.0001$ , \*\*\*\*.