„A comparative multi-parametric *in vitro* model identifies the power of test conditions to predict the fibrotic tendency of a biomaterial"

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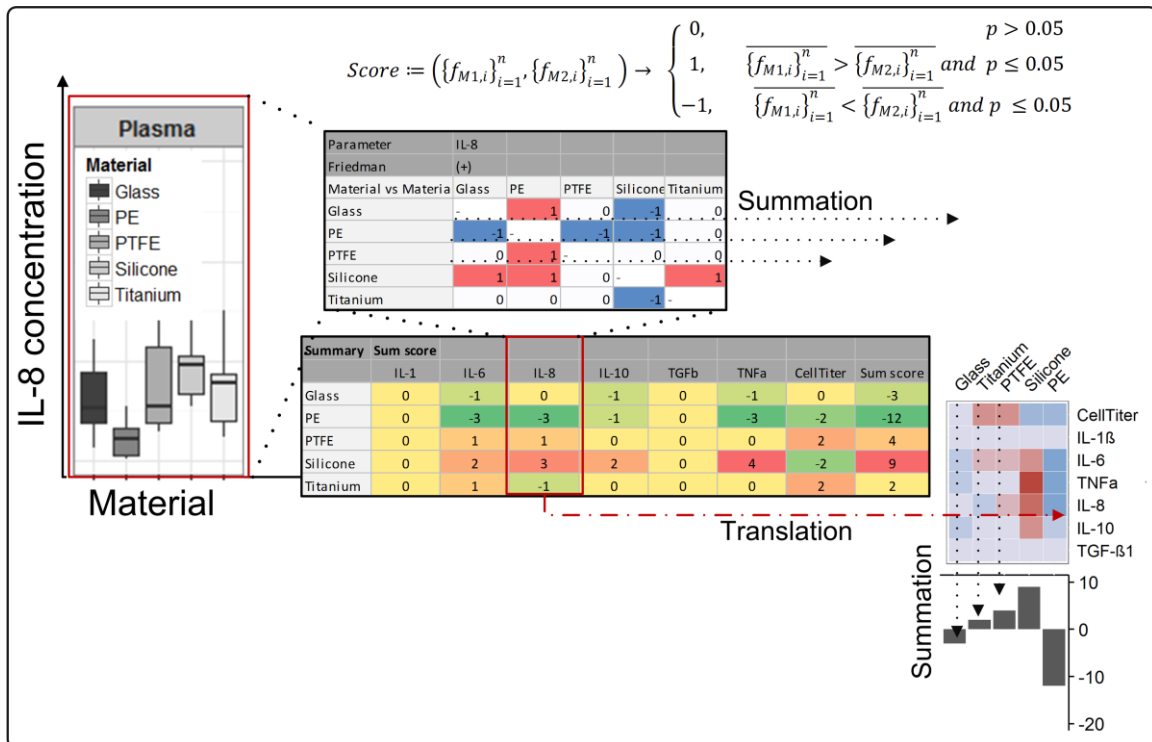
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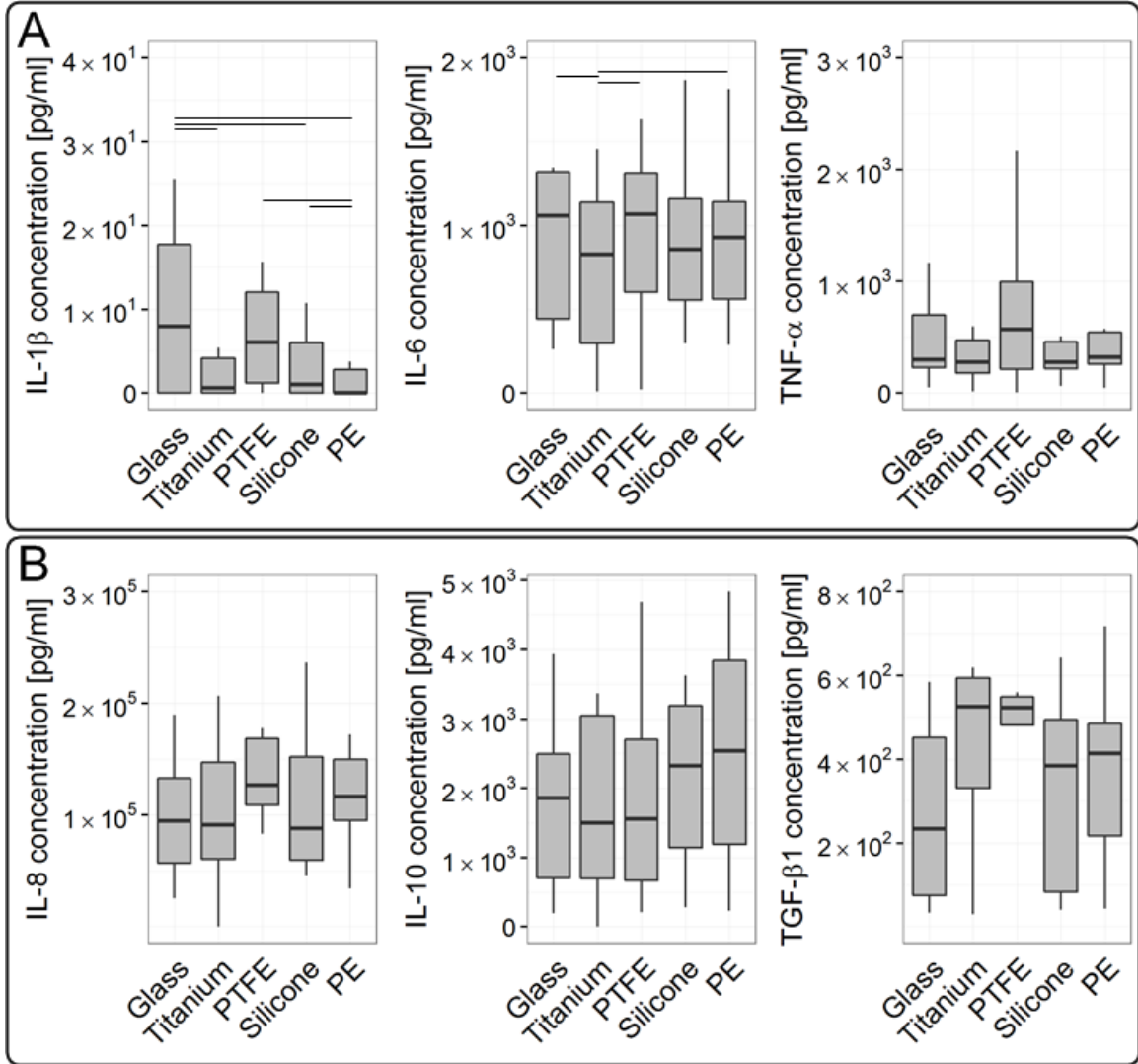
Figure S1: Pro-inflammatory LPS stimulation of macrophages induced a highly increased secretion of most cytokines compared to material-induced secretion; exceptionally TGF-β1 levels entirely remained LPS-unaffected. (A) Significant differences between materials were found for IL-1ß and IL-6, whereas no differences were shown for TNF-α and (B) IL-8, IL-10 and TGF-ß1. Supernatants of ten macrophage donors (n = 10) were analyzed. A *p*-value ≤ 0.05 is considered as significant.

$$Score := \left(\{f_{M1,i}\}_{i=1}^n, \{f_{M2,i}\}_{i=1}^n\right) \to \begin{cases} 0, & p > 0.05 \\ 1, & \overline{\{f_{M1,i}\}_{i=1}^n} > \overline{\{f_{M2,i}\}_{i=1}^n} \text{ and } p \leq 0.05 \\ -1, & \overline{\{f_{M1,i}\}_{i=1}^n} < \overline{\{f_{M2,i}\}_{i=1}^n} \text{ and } p \leq 0.05 \end{cases}$$

Parameter	IL-8				
Friedman	(+)				
Material vs Material	Glass	PE	PTFE	Silicone	Titanium
Glass	-	1	0	-1	0
PE	-1	-	-1	-1	0
PTFE	0	1	-	0	0
Silicone	1	1	0	-	1
Titanium	0	0	0	-1	-

Summation

Summary	Sum score							
	IL-1	IL-6	IL-8	IL-10	TGFb	TNFa	CellTiter	Sum score
Glass	0	-1	0	-1	0	-1	0	-3
PE	0	-3	-3	-1	0	-3	-2	-12
PTFE	0	1	1	0	0	0	2	4
Silicone	0	2	3	2	0	4	-2	9
Titanium	0	1	-1	0	0	0	2	2

Translation

Figure S2: A scoring system was introduced allowing materials' evaluation. Therefore, under each test condition significant differences between two pairs of tested materials were translated into a scoring with a value of 1 for the significantly higher pair and a scoring of -1 for significantly lower pair (p-value ≤ 0.05). If no significant difference was found (p-value > 0.05), a zero value was included in the assessment. For each material, the relevance of a specific readout factor was derived by summation of the significance profile from pair-wise scoring. The obtained factor-dependent relation of a material in comparison to all other materials was visualized in a heat map. To generate a material ranking based on all measured readout factors, finally the sum of all factor-dependent scores was computed.