

## SUPPLEMENTAL MATERIAL

### **Endogenous Circadian Regulation of Pro-inflammatory Cytokines and Chemokines in the Presence of Bacterial Lipopolysaccharide in Humans**

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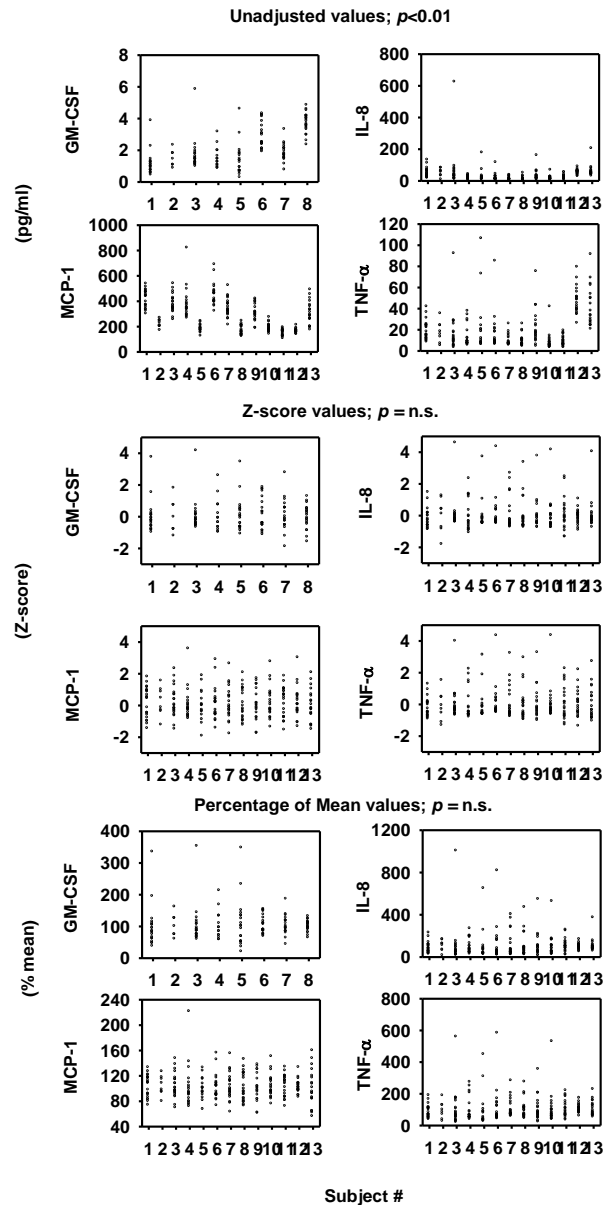
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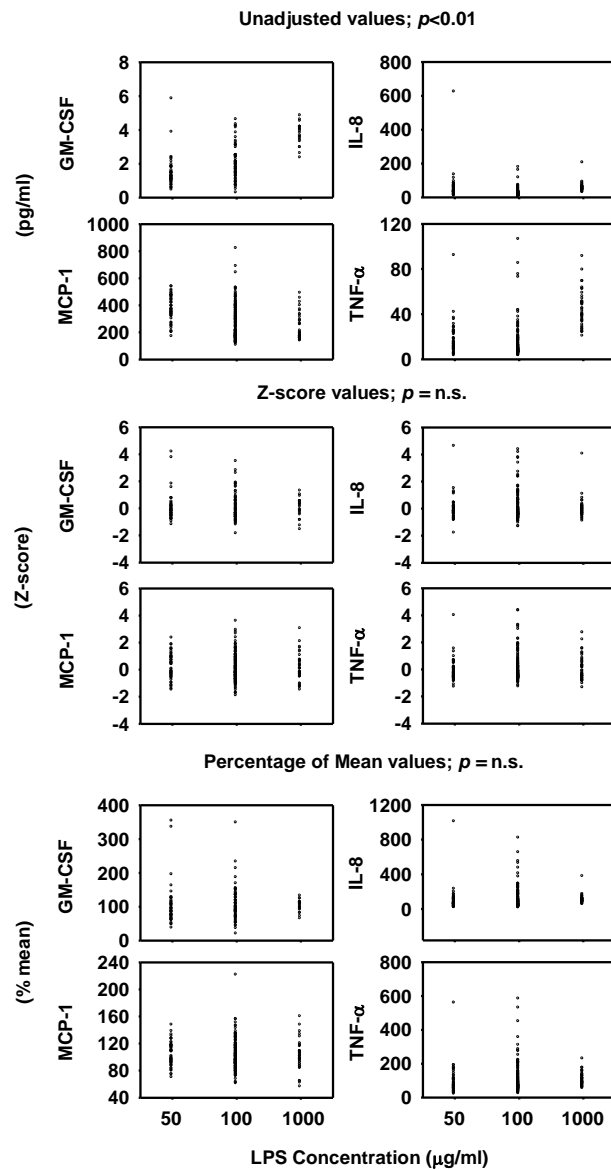
**Supplemental Table 1: Percentage of total population with significant cosinor regression using four different models.**

<b>Exploratory Model Selection</b>				
Constant Routine				
Model	GM-CSF	IL-8	MCP-1	TNF- $\alpha$
1	62.5	46.2	38.5	30.8
2	0.0	15.4	30.8	7.7
3	25.0	30.8	30.8	30.8
4	12.5	7.7	0.0	30.8
Baseline				
Model	GM-CSF	IL-8	MCP-1	TNF- $\alpha$
1	33.3	18.2	18.2	0.0
2	16.7	0.0	27.3	0.0
3	16.7	63.6	27.3	72.7
4	33.3	18.2	27.3	27.3
Model 1	Single Harmonic			
Model 2	Single Harmonic + Linear			
Model 3	Dual Harmonic			
Model 4	Dual Harmonic + Linear			
<b>Final Model Selection</b>				
Constant Routine				
Model	GM-CSF	IL-8	MCP-1	TNF- $\alpha$
1	62.5	69.2	61.5	38.5
2	37.5	30.8	38.5	61.5
Baseline				
Model	GM-CSF	IL-8	MCP-1	TNF-a
1	50.0	45.5	36.4	36.4
2	50.0	54.6	63.6	63.6
Model 1	Single Harmonic			
Model 2	Dual Harmonic			



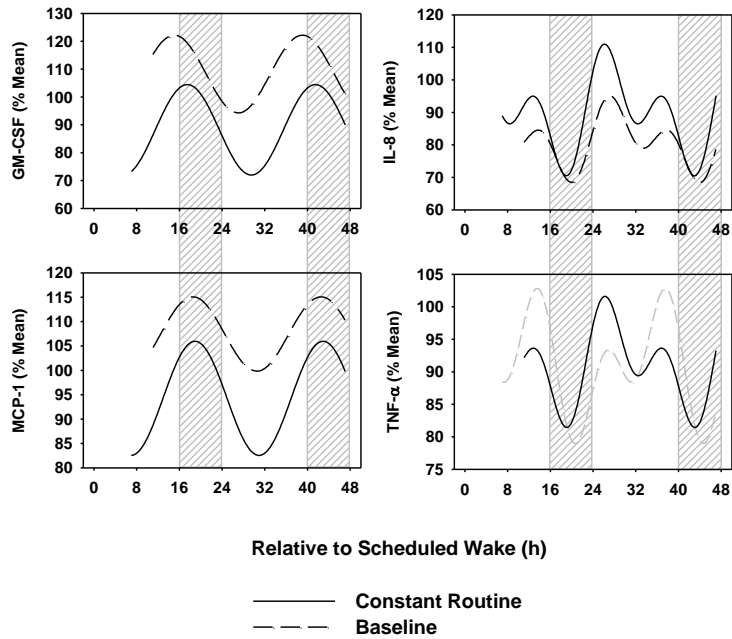
**Supplemental Figure 1**

**Supplemental Figure 1. Baseline differences in cytokine and chemokine expression between individuals.** Individual data are shown from each participant as unadjusted or after Z-score and percentage-of-mean transformations. One-way mixed model analysis showed significant differences between participants in unadjusted cytokine and chemokine levels, independent of LPS dose. These differences were not significant ( $p=n.s.$ ) when analyzed using Z-score and percentage-of-mean transformed data.



**Supplemental Figure 2**

**Supplemental Figure 2. Cytokine and chemokine expression dose response to LPS stimulation.** Individual data are shown from each participant as unadjusted or after Z-score and percentage-of-mean transformations. One-way mixed model analysis showed significant differences between doses in unadjusted cytokine and chemokine levels. These differences were not significant ( $p = \text{n.s.}$ ) when analyzed using Z-score and percentage-of-mean transformed data.



Supplemental Figure 3

**Supplemental Figure 3. Daily baseline and circadian rhythms in innate immune response in the subset of samples treated with the same dose.** Group data mean  $\pm$  SEM (left panel) and group-mean fitted cosinor functions under baseline conditions with standard sleep-wake schedules (dashed lines) and constant conditions (solid lines) of MCP-1, GM-CSF, IL-8 and TNF- $\alpha$ . Non-significant regression fits are marked in gray lines. Hashed gray bars represent group mean scheduled sleep times. Throughout the constant routine participants remained awake.