

**Supplementary Material**

Supplementary Table 1: Diagnostic codes for diabetes.

<b>ICD-9</b>
250.X
<b>ICD-10</b>
E11.X
E08.X
E09.X
E13.X

Supplementary Table 2: Correlation between cytokine/chemokine assays.

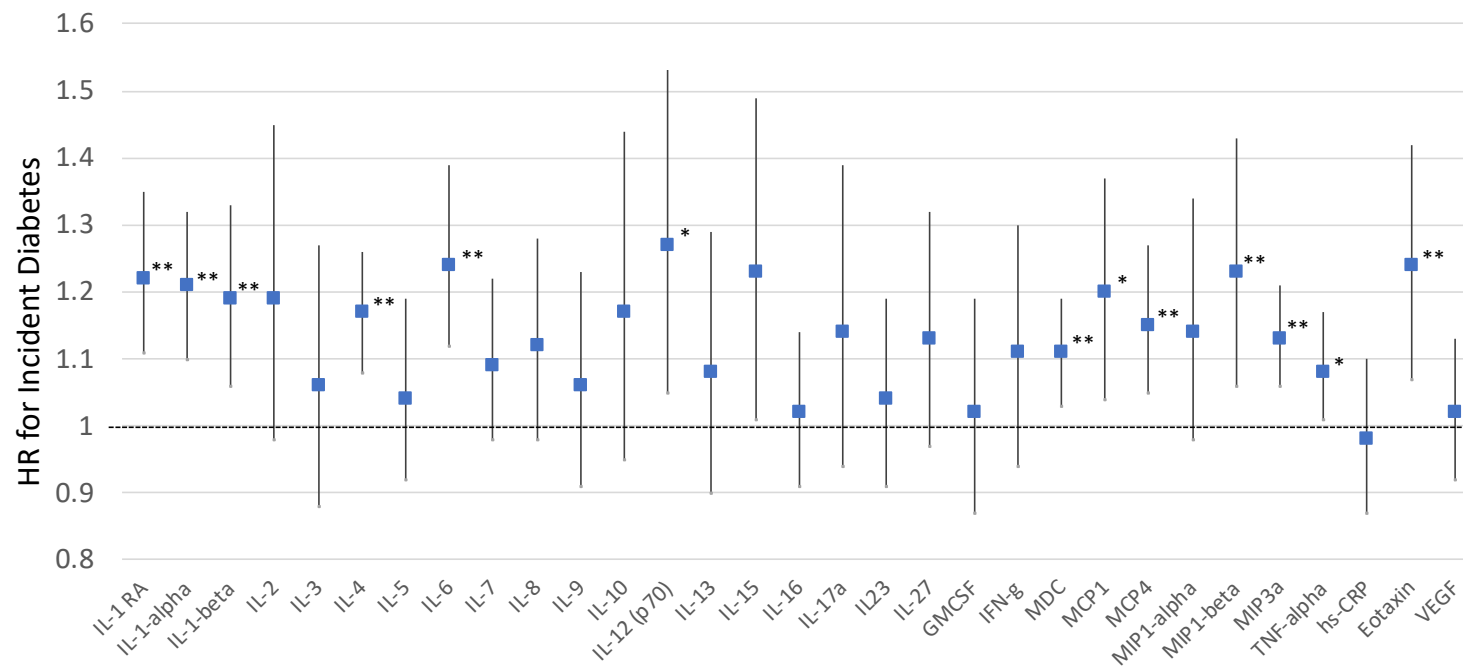
Analyte	Eotaxin	GM-CSF	IFN-g	IL-10	IL-12 (p70)	IL-13	IL-15	IL-16	IL-17A	IL-1 RA	IL-1a	IL-1B
Eotaxin	1											
GM-CSF	0.150***	1										
IFN-g	0.492***	0.476***	1									
IL-10	0.530***	0.438***	0.682***	1								
IL-12 (p70)	0.293***	0.495***	0.545***	0.496***	1							
IL-13	0.322***	0.533***	0.497***	0.554***	0.665***	1						
IL-15	0.298***	0.235***	0.429***	0.439***	0.260***	0.270***	1					
IL-16	0.594***	0.238***	0.617***	0.689***	0.360***	0.385***	0.481***	1				
IL-17A	0.300***	0.267***	0.330***	0.349***	0.287***	0.262***	0.282***	0.262***	1			
IL-1 RA	0.319***	0.290***	0.282***	0.383***	0.281***	0.361***	0.197***	0.161***	0.222***	1		
IL-1a	0.0629***	0.375***	0.182***	0.230***	0.289***	0.341***	0.132***	0.0197**	0.200***	0.337***	1	
IL-1B	0.0479***	0.474***	0.268***	0.328***	0.306***	0.526***	0.180***	0.0967***	0.170***	0.467***	0.540***	1
IL-2	0.361***	0.419***	0.489***	0.562***	0.405***	0.536***	0.299***	0.435***	0.255***	0.318***	0.332***	0.473***
IL-23	0.0718***	0.200***	0.127***	0.126***	0.144***	0.149***	0.197***	0.0882***	0.0464***	0.0237***	0.188***	0.223***
IL-27	0.559***	0.194***	0.577***	0.634***	0.342***	0.324***	0.442***	0.858***	0.239***	0.0812***	-0.00170	0.0401***
IL-3	0.134***	0.353***	0.284***	0.261***	0.293***	0.230***	0.184***	0.121***	0.189***	0.247***	0.182***	0.180***
IL-4	0.293***	0.468***	0.492***	0.481***	0.575***	0.507***	0.198***	0.322***	0.264***	0.358***	0.297***	0.354***
IL-5	0.126***	0.479***	0.424***	0.361***	0.346***	0.337***	0.309***	0.283***	0.333***	0.135***	0.194***	0.227***
IL-6	0.471***	0.458***	0.580***	0.702***	0.495***	0.545***	0.469***	0.633***	0.264***	0.475***	0.306***	0.438***
IL-7	0.524***	0.170***	0.564***	0.600***	0.283***	0.280***	0.556***	0.842***	0.291***	0.0247***	-0.00535	-0.0116
IL-8	0.479***	0.407***	0.507***	0.626***	0.377***	0.595***	0.410***	0.611***	0.276***	0.406***	0.267***	0.543***
IL-9	0.415***	0.220***	0.454***	0.417***	0.314***	0.270***	0.325***	0.494***	0.257***	0.204***	0.106***	0.141***
MCP-1	0.541***	0.224***	0.585***	0.659***	0.344***	0.356***	0.545***	0.827***	0.284***	0.175***	0.0548***	0.0846***
MCP-4	0.617***	0.195***	0.573***	0.629***	0.334***	0.344***	0.421***	0.849***	0.274***	0.101***	0.0401***	0.0582***
MDC	0.523***	0.205***	0.569***	0.639***	0.325***	0.338***	0.556***	0.845***	0.277***	0.0687***	0.0359***	0.0569***
MIP-1a	0.490***	0.427***	0.461***	0.589***	0.415***	0.545***	0.237***	0.482***	0.252***	0.423***	0.295***	0.471***
MIP-1B	0.607***	0.301***	0.593***	0.732***	0.423***	0.472***	0.450***	0.791***	0.316***	0.325***	0.171***	0.225***
MIP-3a	0.439***	0.314***	0.549***	0.611***	0.406***	0.405***	0.468***	0.686***	0.287***	0.235***	0.176***	0.215***
TNF-a	0.527***	0.406***	0.600***	0.637***	0.441***	0.496***	0.410***	0.597***	0.369***	0.319***	0.183***	0.279***
VEGF	0.332***	0.242***	0.361***	0.395***	0.267***	0.286***	0.402***	0.429***	0.111***	0.381***	0.114***	0.214***
hsCRP	0.0551***	0.0859***	0.0689***	0.106***	0.0598***	0.0529***	0.0867***	0.0497***	0.108***	0.252***	0.0371***	0.0603***

Analyte	IL-2	IL-23	IL-27	IL-3	IL-4	IL-5	IL-6	IL-7	IL-8	IL-9	MCP-1	MCP-4
Eotaxin												
GM-CSF												
IFN-g												
IL-10												
IL-12 (p70)												
IL-13												
IL-15												
IL-16												
IL-17A												
IL-1 RA												
IL-1a												
IL-1B												
IL-2	1											
IL-23	0.242***	1										
IL-27	0.400***	0.127***	1									
IL-3	0.187***	0.133***	0.139***	1								
IL-4	0.380***	0.0590***	0.287***	0.201***	1							
IL-5	0.274***	0.138***	0.263***	0.276***	0.254***	1						
IL-6	0.552***	0.120***	0.566***	0.203***	0.557***	0.283***	1					
IL-7	0.365***	0.109***	0.816***	0.0906***	0.223***	0.276***	0.547***	1				
IL-8	0.600***	0.122***	0.506***	0.106***	0.416***	0.244***	0.700***	0.504***	1			
IL-9	0.304***	0.114***	0.492***	0.156***	0.285***	0.256***	0.444***	0.505***	0.404***	1		
MCP-1	0.432***	0.121***	0.808***	0.0965***	0.316***	0.290***	0.629***	0.828***	0.597***	0.521***	1	
MCP-4	0.419***	0.121***	0.847***	0.0980***	0.327***	0.278***	0.579***	0.832***	0.570***	0.505***	0.853***	1
MDC	0.408***	0.152***	0.822***	0.0881***	0.272***	0.291***	0.613***	0.864***	0.574***	0.523***	0.893***	0.889***
MIP-1a	0.540***	0.126***	0.422***	0.186***	0.474***	0.204***	0.678***	0.367***	0.673***	0.360***	0.447***	0.483***
MIP-1B	0.493***	0.1000***	0.743***	0.150***	0.438***	0.256***	0.739***	0.731***	0.690***	0.499***	0.795***	0.784***
MIP-3a	0.451***	0.129***	0.683***	0.199***	0.337***	0.289***	0.635***	0.641***	0.526***	0.442***	0.658***	0.645***
TNF-a	0.449***	0.0835***	0.550***	0.232***	0.408***	0.309***	0.583***	0.515***	0.560***	0.406***	0.572***	0.564***
VEGF	0.278***	0.0179***	0.376***	0.167***	0.323***	0.228***	0.555***	0.413***	0.461***	0.342***	0.427***	0.386***
hsCRP	0.0389***	-0.0496***	0.0513***	0.118***	0.0812***	0.183***	0.235***	0.0635***	0.0735***	0.0745***	0.0509***	0.0330***

Analyte	MDC	MIP-1a	MIP-1B	MIP-3a	TNF-a	VEGF	Hs-CRP
Eotaxin							
GM-CSF							
IFN-g							
IL-10							
IL-12 (p70)							
IL-13							
IL-15							
IL-16							
IL-17A							
IL-1 RA							
IL-1a							
IL-1B							
IL-2							
IL-23							
IL-27							
IL-3							
IL-4							
IL-5							
IL-6							
IL-7							
IL-8							
IL-9							
MCP-1							
MCP-4							
MDC	1						
MIP-1a	0.433***	1					
MIP-1B	0.789***	0.699***	1				
MIP-3a	0.691***	0.494***	0.676***	1			
TNF-a	0.556***	0.527***	0.625***	0.549***	1		
VEGF	0.418***	0.346***	0.459***	0.438***	0.398***	1	
hsCRP	0.0287***	0.0654***	0.0686***	0.115***	0.0333***	0.254***	1

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Supplementary Figure 1: Adjusted Hazard Ratios for the risk of incident diabetes among patients with rheumatoid arthritis and no history of diabetes (N=1,635, Events=119) by individual cytokine concentrations (per 1 SD) measured on banked serum from enrollment; each analyte examined in a separate model adjusting for age, sex, race, current smoking, baseline body mass index, DAS28(CRP), and baseline use of methotrexate, TNF-biologics, and prednisone (each estimate and confidence interval represents a separate model).



Abbreviations: IL= Interleukin; GMCSF= Granulocyte Macrophage Colony Stimulating Factor; IFN= Interferon; MCP= Monocyte Chemoattractant Protein; MIP=Macrophage Inflammatory Protein; VEGF= Vascular Endothelial Growth Factor; TNF= Tumor Necrosis Factor

\*p<0.05

\*\*p<0.008 (Simes-Benjamini-Hochberg adjustment for multiple comparisons)

Abbreviations: IL= Interleukin; GMCSF= Granulocyte Macrophage Colony Stimulating Factor; IFN= Interferon; MDC= Macrophage Derived Chemokine; MCP= Macrophage Chemoattractant Protein; MIP=Macrophage Inflammatory Protein; VEGF= Vascular Endothelial Growth Factor; hs-CRP= high-sensitivity C-Reactive Protein; TNF= Tumor Necrosis Factor