

**Supplementary Table S1**

Hybrid 2 showed the lowest EC50 values (indicating greatest potency) of all agonists tested for both TNF and IL-1 $\beta$  production in adult peripheral blood. The maximum cytokine responses achieved at higher agonist concentrations of Hybrid 2 (e.g., 10mM) was similar to those induced by R848, Meta-amine, and Para-amine.

**Hybrid-2**

Concentration [ $\mu$ M]	Newborn		Adult	
	TNF- $\alpha$	IL-1 $\beta$	TNF- $\alpha$	IL-1 $\beta$
0.01	193.14	15.63	23.44	15.63
0.03	189.84	15.63	102.83	15.63
0.1	464.55	129.48	1427.29	37.42
0.3	1998.77	437.70	6362.58	427.95
1	3750.42	1169.67	14269.07	1061.65
10	10395.78	1887.36	20983.61	2972.60

**Meta-amine**

Concentration [ $\mu$ M]	Newborn		Adult	
	TNF- $\alpha$	IL-1 $\beta$	TNF- $\alpha$	IL-1 $\beta$
0.01	79.15	15.63	23.44	15.63
0.03	78.72	15.63	23.44	15.63
0.1	94.65	15.63	20.83	15.63
0.3	93.72	15.63	214.57	15.63
1	1779.40	271.87	3739.68	232.86
10	32214.43	6199.29	19087.54	2699.66

**Para-amine**

Concentration [ $\mu$ M]	Newborn		Adult	
	TNF- $\alpha$	IL-1 $\beta$	TNF- $\alpha$	IL-1 $\beta$
0.01	64.05	15.63	23.44	15.63
0.03	120.31	15.63	121.74	15.63
0.1	70.49	15.63	856.34	15.63
0.3	381.52	15.63	3653.12	15.63
1	1780.16	387.41	6740.50	419.70
10	16542.73	2820.52	18165.00	2008.09

**R848**

Concentration [ $\mu$ M]	Newborn		Adult	
	TNF- $\alpha$	IL-1 $\beta$	TNF- $\alpha$	IL-1 $\beta$
0.01	95.80	15.63	23.44	15.63
0.03	84.29	15.63	23.44	15.63
0.1	68.30	46.36	284.13	14.94
0.3	210.98	15.63	549.52	15.63
1	654.85	415.65	3939.41	191.49
10	1574.58	322.08	19454.73	1922.12