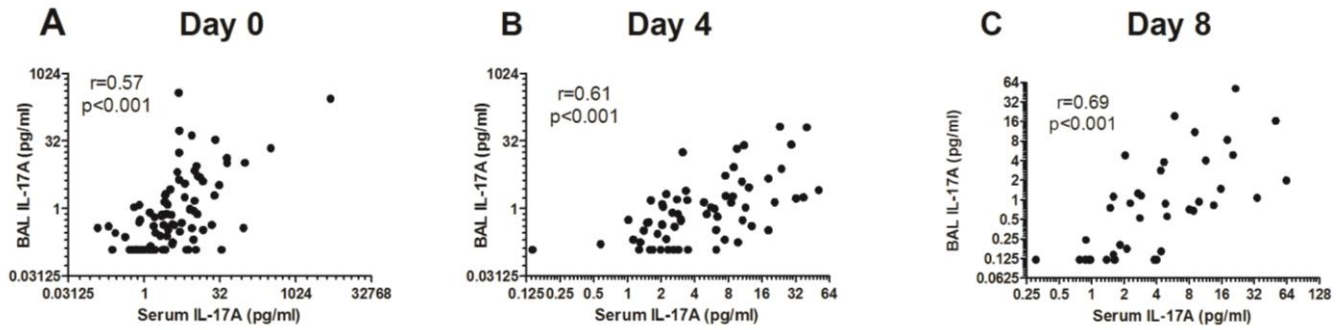
Supplemental Results



Supplemental Figure 1. Serum and BAL IL-17A levels are highly correlated. ARDS1 subjects were enrolled within 48 hours of ARDS onset and bronchoalveolar lavage fluid and peripheral blood were obtained on days 0, 4, and 8 after enrollment. IL-17A concentration was measured by electrochemiluminesence (Meso Scale Discovery, Gaithersburg, MD). Association testing between log base-2 transformed BAL IL-17A concentration and log base-2 transformed serum IL-17A concentration was performed using a Pearson's correlation (r). Serum and BAL IL-17A levels were significantly correlated on day zero (A), day four (B), and day 8 (C).

Supplemental Table 1. Source of suspected infection and presence of septic shock for subjects with Sepsis Associated ARDS

	ARDS1, N (%)	ARDS2, N (%)
Sepsis (SIRS + suspected infection)	56	113
Septic Shock	11 (20)	47 (41)
Source of sepsis [a]		
Pneumonia	36 (64)	63 (56)
Bacteremia	13 (23)	9 (8)
Abdominal	3 (5)	4 (3)
Genitourinary	9 (16)	4 (3)
Soft Tissue/Bone	9 (16)	4 (3)
CSF	1 (2)	0
Unknown	2 (3)	29 (26)
Infectious Pathogen		
Gram positive	16 (28)	25 (22)
Gram negative	4 (9)	11 (10)
Polymicrobial	7 (12)	12 (11)
Other	3 (5)	8 (7)
Unknown	26 (46)	57 (50)

[a] Sources of infection are not mutually exclusive

Supplemental Table 2. Association between IL-17A concentration and alveolar neutrophils on day 4 and day 8

Log2 (IL-17A)	N	% Alveolar Neutrophils[a]	
		β (95% CI)	p
BAL IL-17A			
Day 4	63	5.8 (2.8-8.8)	<0.001
Day 8	39	10 (6.6-14)	<0.001
Serum IL-17A			
Day 4	68	5.8 (1.1-10)	0.02
Day 8	41	9.4 (3.5-15)	0.002

[a] Linear regression between log-2 transformed IL-17A concentration and percent alveolar neutrophils. Analyses compare paired day 4 IL-17A concentration with day 4 percentage of alveolar neutrophils and paired day 8 IL-17A concentration with day 8 percentage of alveolar neutrophils.

Supplemental Table 3. Association between IL-17A concentration and alveolar protein content on day 0, day 4, and day 8

Log2 (IL-17A)	N	Alveolar Protein β (95% CI)[a]	p	Adj. β (95% CI)[b]	Adj. p[b]
BAL IL-17A					
Day 0	82	0.07 (0.02-0.11)	<0.007	0.08 (0.03-0.13)	0.002
Day 4	63	0.12 (0.07-0.18)	<0.001	0.13 (0.06-0.19)	<0.001
Day 8	39	0.14 (0.06-0.21)	0.001	0.13 (0.05-0.21)	0.003
Serum IL-17A					
Day 0	85	0.03 (-0.03-0.08)	0.34	0.04 (-0.02-0.10)	0.18
Day 4	64	0.002 (-0.09-0.09)	0.95	-0.02 (-0.12-0.08)	0.63
Day 8	40	0.10 (-0.01-0.21)	0.08	0.09 (-0.03-0.21)	0.15

[a] Linear regression between log-2 transformed IL-17A concentration and log-10 transformed total alveolar protein concentration. Analyses compare paired day 0 IL-17A concentration with day 0 protein, paired day 4 IL-17A with day 4 protein, and paired day 8 IL-17A concentration with day 8 protein.
[b]Adjusted for age, gender, race, treatment group, sepsis, APACHE II score

Supplemental Table 4. Association between IL-17A concentration and percent alveolar neutrophils in direct or indirect lung injury.

Log2 (IL-17A)	N	% Alveolar Neutrophils[a]	
		β (95% CI)	p
BAL IL-17A			
Direct	42	3.7 (0.6-6.8)	0.02
Indirect	38	7.6 (4.2-11)	<0.001
Serum IL-17A			
Direct	45	4.8 (1.1-8.6)	0.01
Indirect	38	--	NS

[a] Linear regression between log-2 transformed IL-17A concentration and percent alveolar neutrophils in subgroups with direct ARDS (aspiration, inhalation, drowning, pneumonia) or indirect ARDS.

Supplemental Table 5. Increasing IL-17A concentration is associated with increased risk of Sepsis-Associated ARDS

Group	OR (95% CI)a	P Value	Adjusted OR (95% CI)[b]	P Value
ARDS 1				
Serum IL-17A	1.44 (1.11-1.87)	0.006	1.58 (1.17-2.13)	0.003
BAL IL-17A	1.37 (1.09-1.73)	0.008	1.39 (1.09-1.78)	0.008
ARDS 2				
Plasma IL-17A	1.28 (0.99-1.66)	0.057	1.34 (1.02-1.76)	0.035

ARDS = Acute Respiratory Distress Syndrome; OR = odds ratio; CI = 95% confidence interval; BAL = bronchoalveolar lavage; APACHE = Acute Physiology and Chronic Health Evaluation.

[a]Logistic between Log-2 transformed IL-17A and sepsis-associated ARDS

[b] Adjusted for ARDS 1: Age, gender, race, treatment group, sepsis, APACHE II or ARDS 2: Age, gender, sepsis, APACHE III