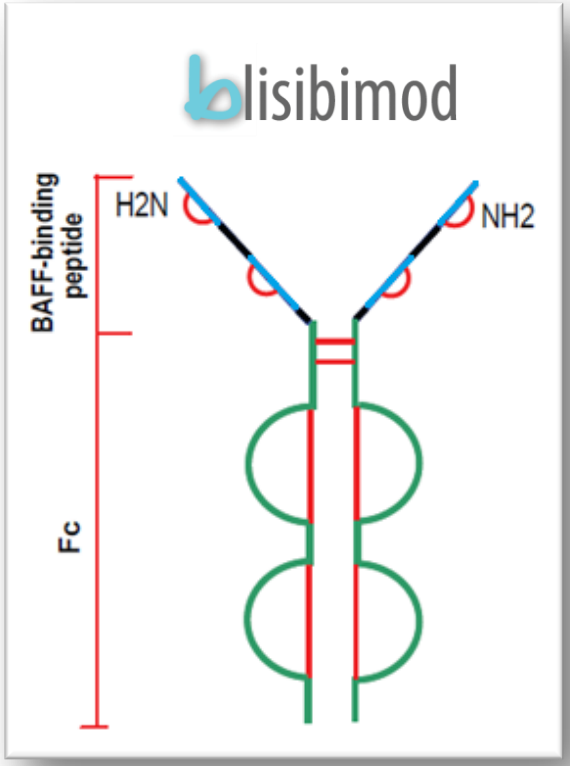
Presentation O21, Session 5, April 20, 2013

Blisibimod, an Emerging Subcutaneous Biologic Therapy for Patients with Active, Moderate-to-Severe Systemic Lupus Erythematosus

Scheinberg MA: Rheumatology Hospital Abreu Sodre Pesquisa Clínica, São Paulo, Brazil
Leon G: Rheumatology Gynecology & Reproduction Institute, Lima, PERU
Ramiterre EB: Brokenshire Memorial Hospital, Davao City, Philippines
Thomas M: Health and Research Centre, Trivandrum, Kerala India
Chu AD**: Anthera Pharmaceuticals, Hayward, California USA
Martin RS**: Anthera Pharmaceuticals, Hayward, California USA
Petri MA*: Johns Hopkins University School of Medicine, Baltimore, Maryland, US
Furie RA*: North Shore–Long Island Jewish Health System, Lake Success, New York, USA
For the PEARL-SC Study Group

* Consultant for Anthera Pharmceuticals
** Employee of Anthera Pharmaceuticals Inc

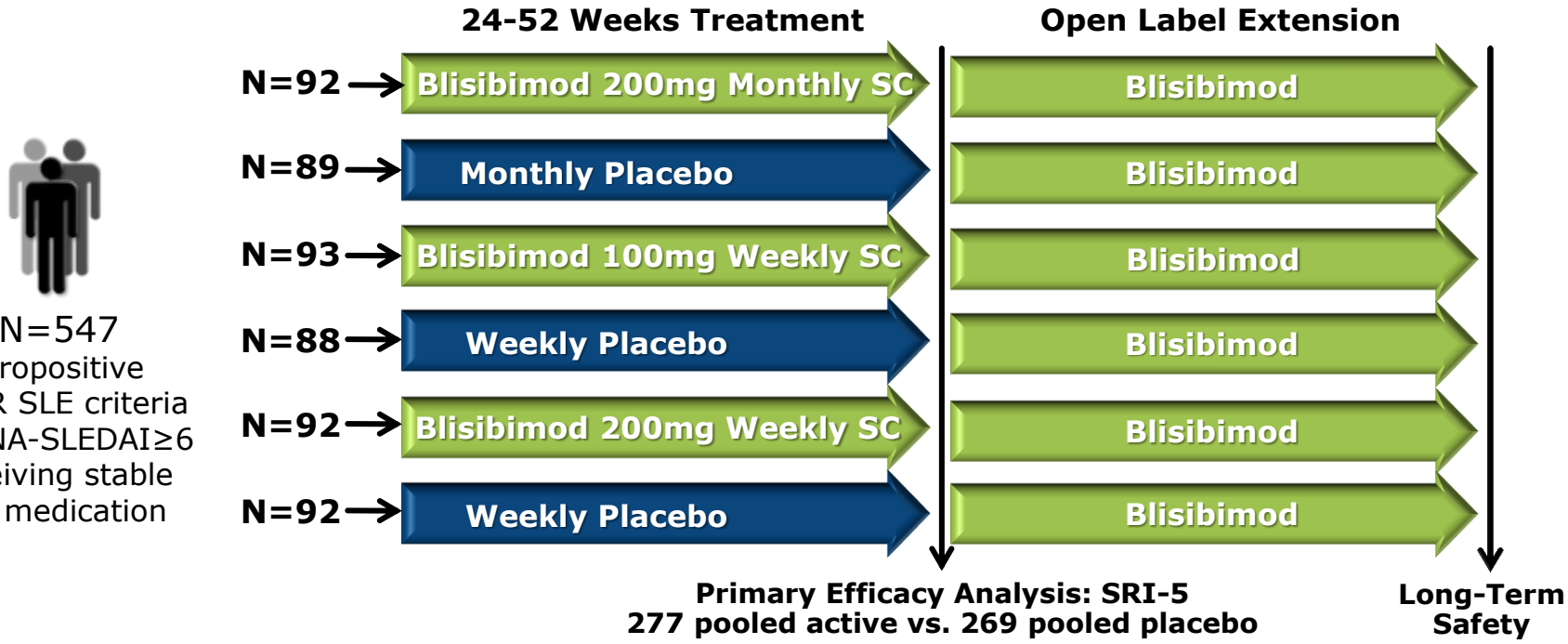
What is Blisibimod?



- A peptibody, composed of two identical polypeptides
  - 4 BAFF binding peptides (blue)
  - Human IgG1 Fc domain (green)
  - Dimer linked covalently via disulfide bonds (red)
- High affinity for human BAFF (K_D=1 pM)
- Binds soluble and membrane-bound BAFF
- Long human serum half-life (8-12 days)

PEARL-SC Study Design

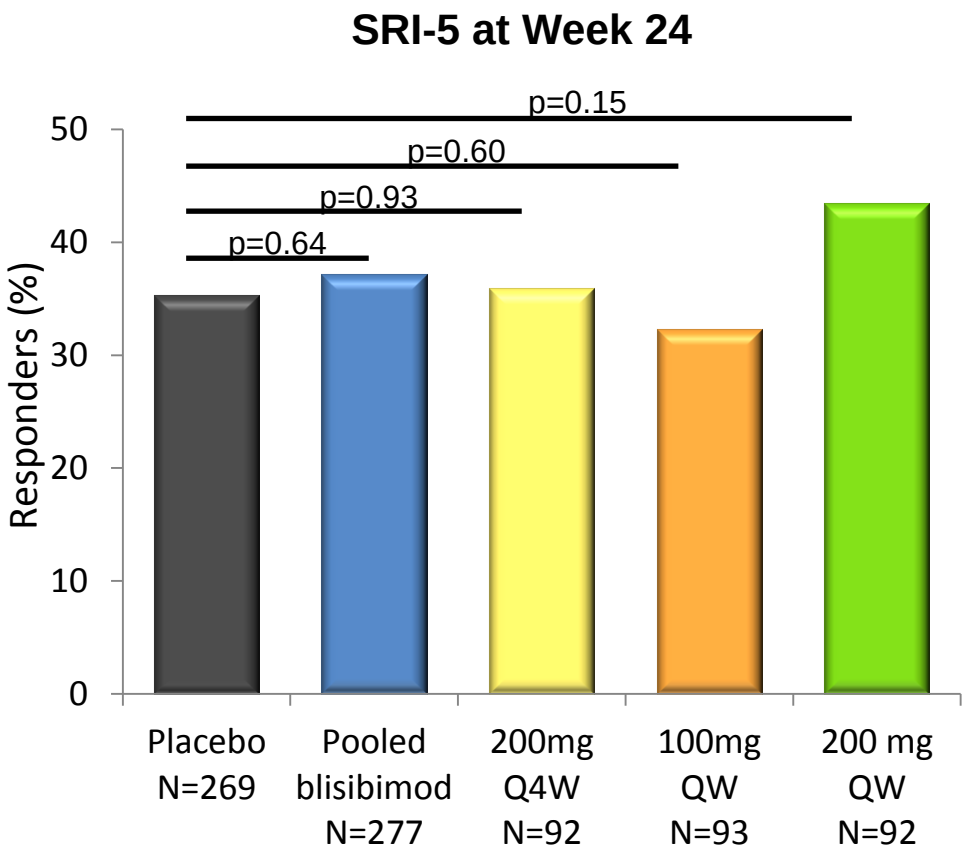
A randomized, double-blind Phase 2b study to evaluate the efficacy, safety, and tolerability of blisibimod (A-623) in subjects with SLE

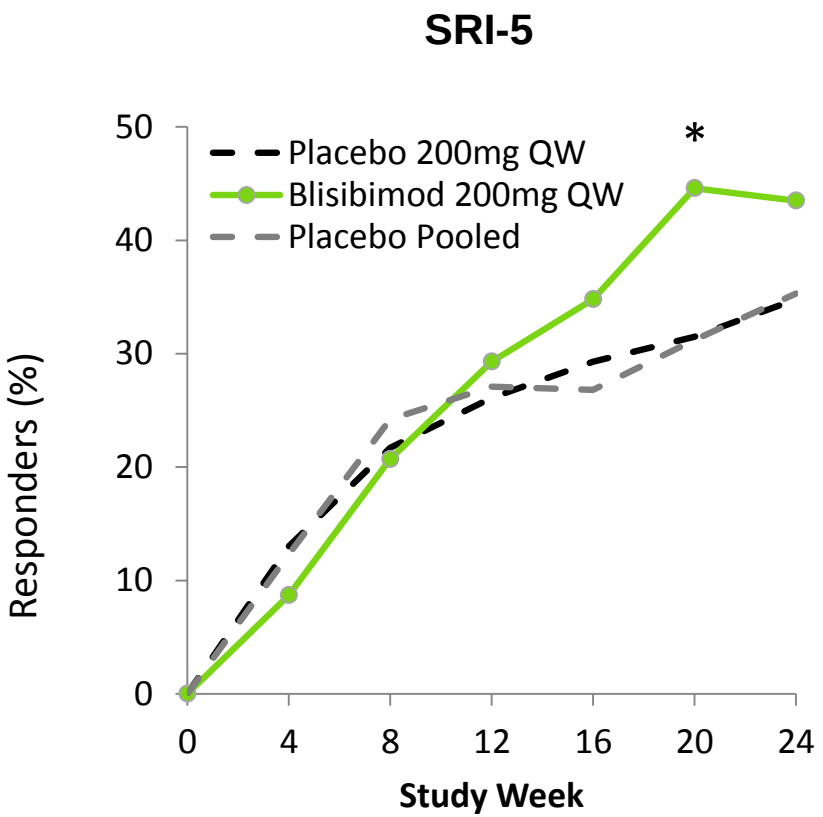


Systemic Lupus Responder Index (SRI) is now a composite endpoint comprised of a **≥5** point improvement in the SELENA-SLEDAI clinical assessment instrument AND no new BILAG 1A or 2B organ domain flares AND no worsening in Physician's Global Assessment (PGA) (< 0.3 increase)

Primary Efficacy Results

mITT Population





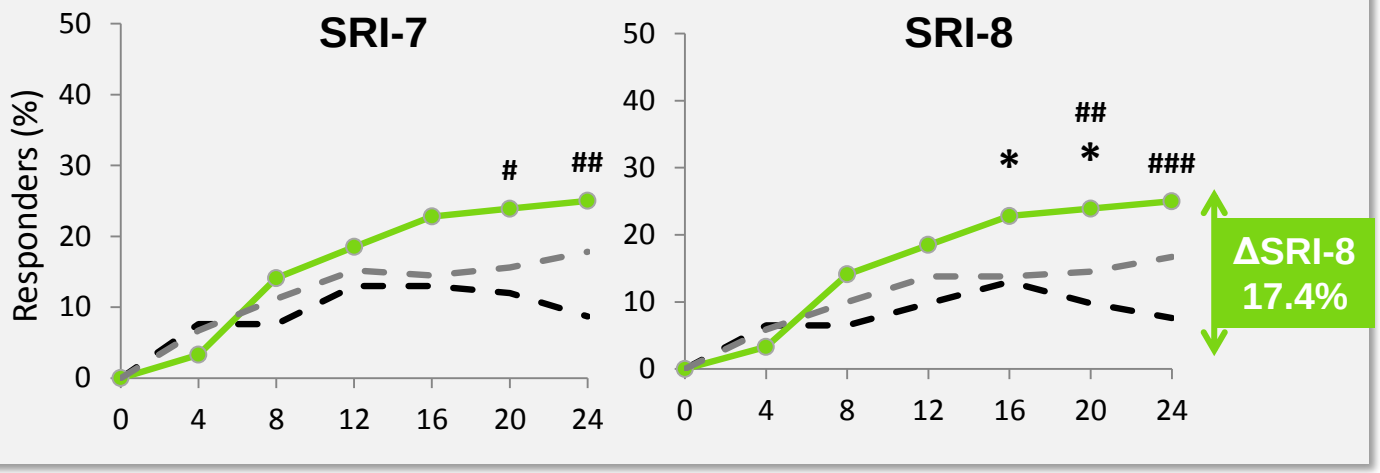
*p<0.05 vs pooled placebo.

QW = Once weekly; Q4W = Once every 4 weeks

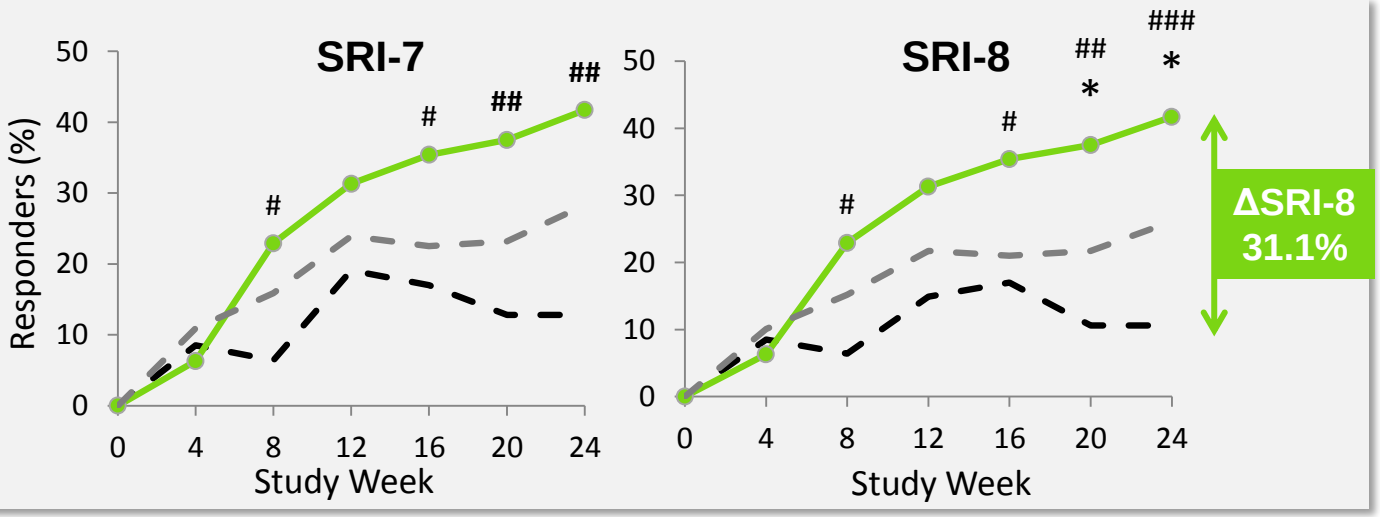
Secondary Efficacy Results

SRI Response with SELENA-SLEDAI Improvements of ≥7 and ≥8

mITT population
All subjects receiving ≥1 dose of study drug



Severe SLE subgroup:
SELENA-SLEDAI≥10 and Steroid at Baseline

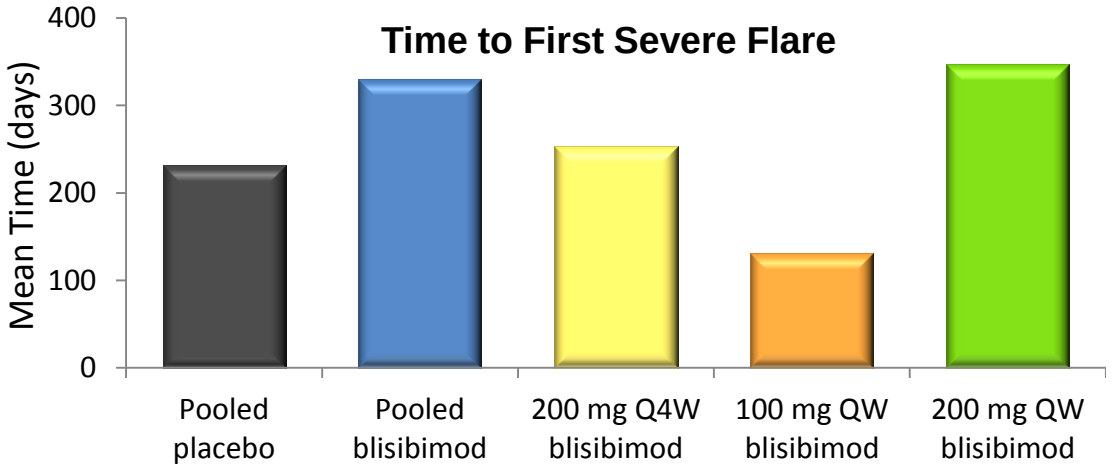


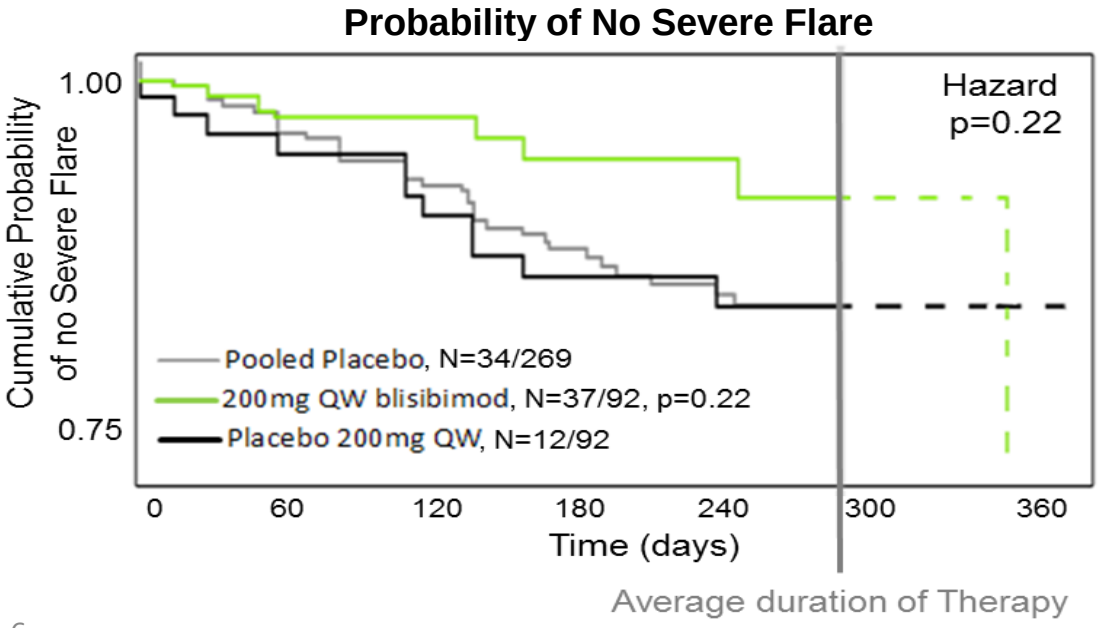
Placebo 200mg QW — Blisibimod 200mg QW — Placebo Pooled

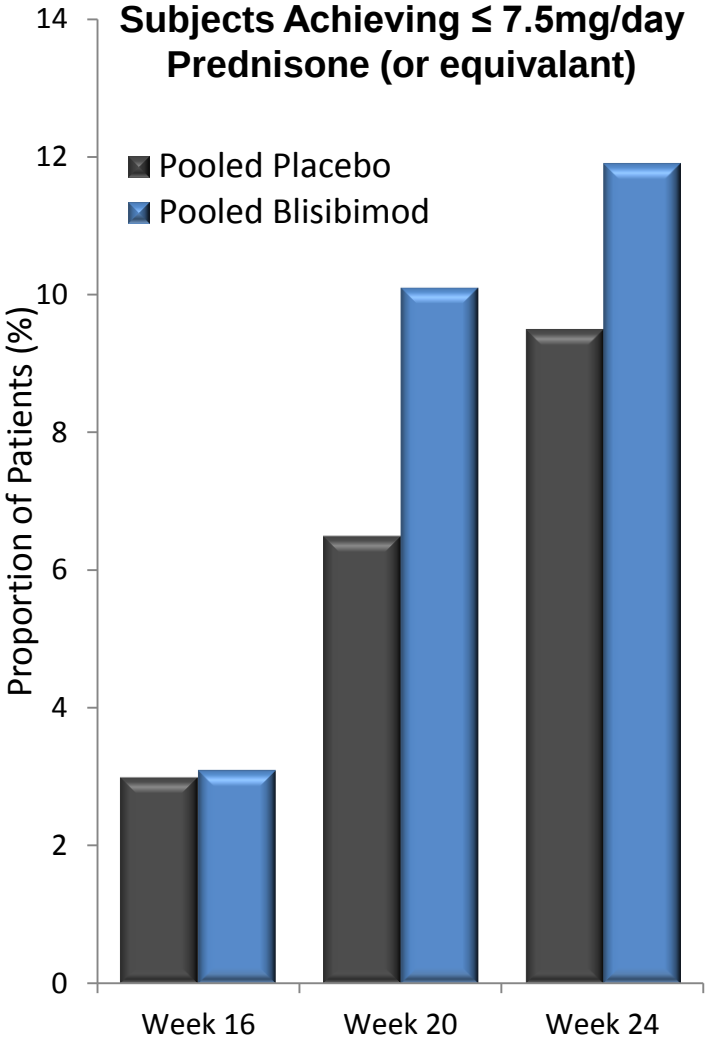
QW = Once weekly; *p<0.05 vs pooled placebo.
#p<0.05; ##p<0.01; ###p<0.001 vs regimen-matched placebo

SLE Flare and Background Steroid Dose

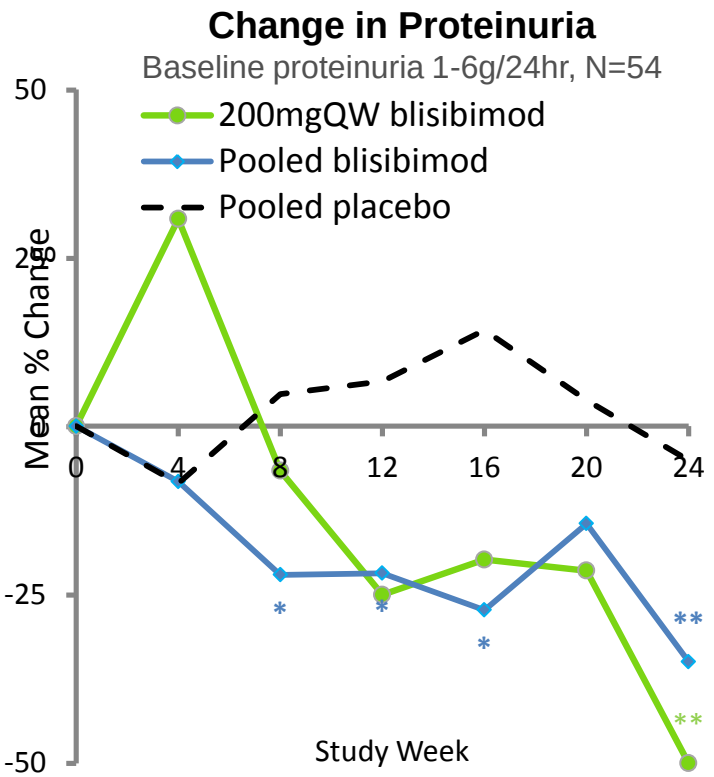
mITT Population

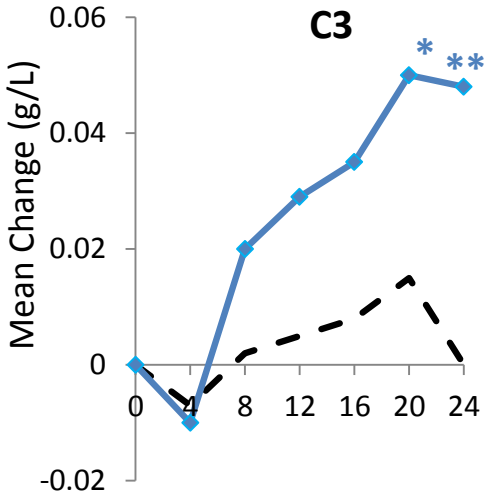


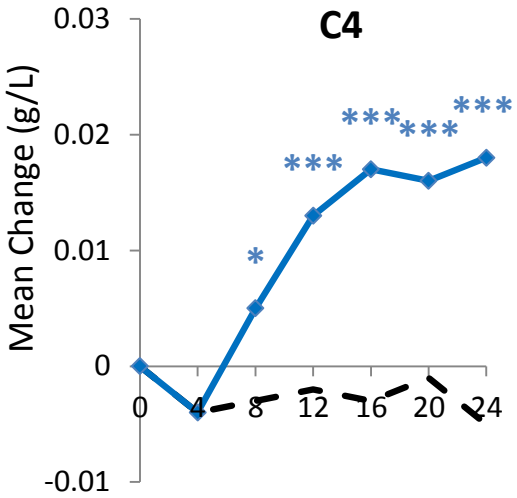


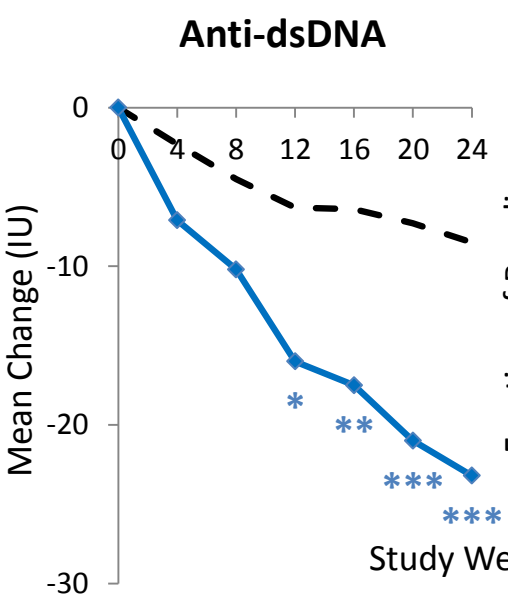


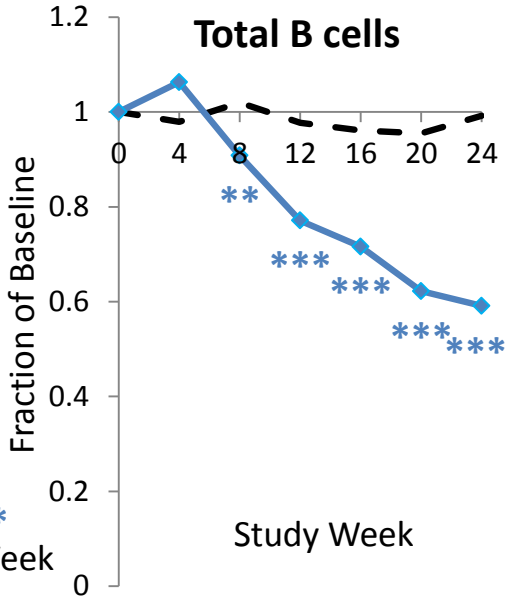
Improvements in Proteinuria and SLE Biomarkers











Placebo Pooled (N=269)

Blisibimod Pooled (N=277)

QW = every weekly, Q4W = every 4 weeks

p<0.05; ** p<0.01; *** p<0.001

Adverse Events: Overview

	Placebo N=266 (%)	Pooled Active N=280 (%)	200 mg Q4W N=92 (%)	100 mg QW N=96 (%)	200 mg QW N=92 (%)
AE	85.0	82.5	78.3	85.4	83.7
Serious AE	15.8	11.1	13.0	12.5	7.6
AEs related to study drug	37.2	40.0	31.5	39.6	48.9
AEs leading to withdrawal	7.9	5.7	3.3	7.3	6.5
AEs leading to death	1.1	1.4	1.1	2.1	1.1
Severe Infection AEs	1.1	1.4	0	2.1	2.2
Severe Injection site reactions	0	0	0	0	0

Conclusions

- These data support Phase 3 evaluation of 200mg QW subcutaneous blisibimod in patients with baseline SELENA-SLEDAI≥10 and receiving steroid:
  - 200mg QW blisibimod was the most effective dose
  - Significant improvements in SRI-7 and SRI-8
  - Significant improvements in the subjects with SELENA-SLEDAI≥10 and receiving steroid
  - Significant decreases in proteinuria in subjects with 1-6g/24h urinary protein
  - Significant improvements in SLE biomarkers: B cells, dsDNA antibodies, C3 and C4
  - Trends toward improvements in flare and background steroid dose reduction

- Blisibimod was safe and well-tolerated at all dose levels

BACK-UP SLIDES

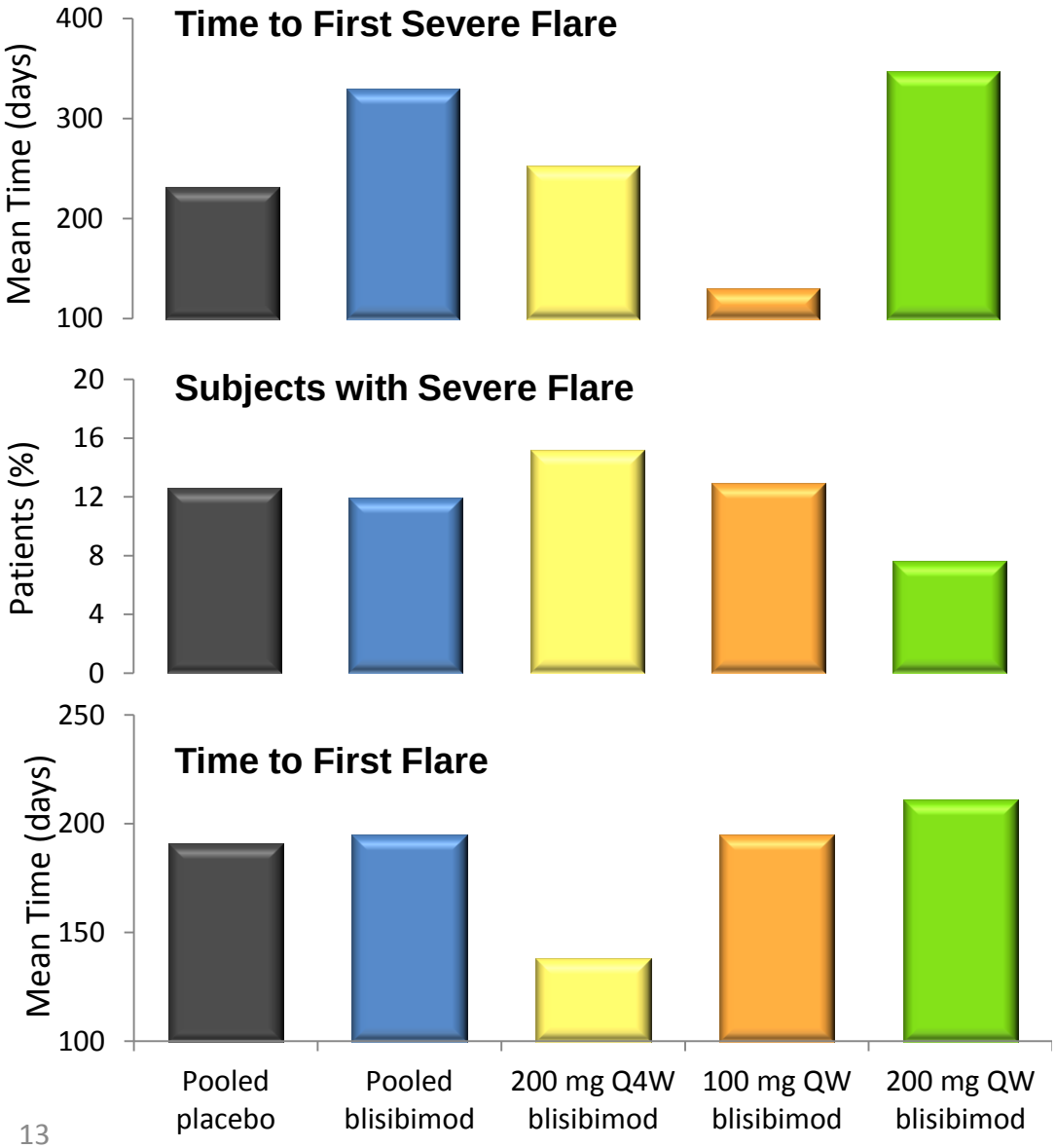
Common Adverse Events (>5% of Subjects)

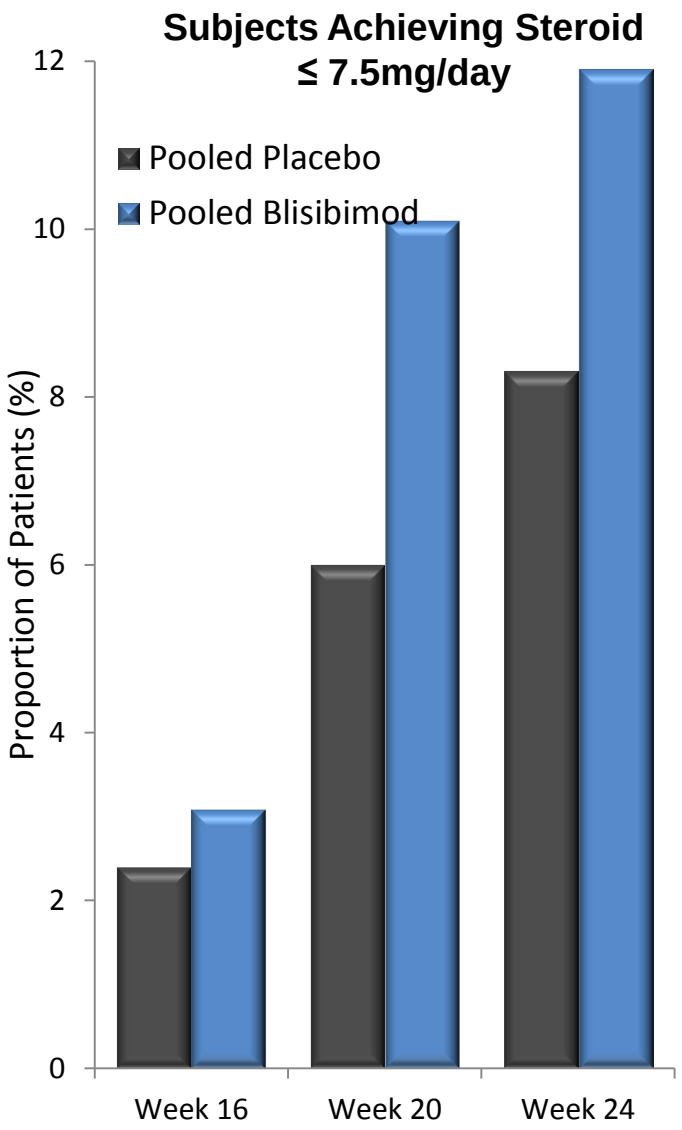
	Placebo N=266 n (%)	Pooled Active N=280 n (%)	200 mg Q4W N=92 n (%)	100 mg QW N=96 n (%)	200 mg QW N=92 n (%)
Diarrhea	26 (9.8)	20 (7.1)	8 (8.7)	5 (5.2)	7 (7.6)
Injection site erythema	2 (0.8)	26 (9.3)	3 (3.3)	15 (15.6)	8 (8.7)
Influenza	17 (6.4)	22 (7.9)	4 (4.3)	11 (11.5)	7 (7.6)
Nasopharyngitis	18 (6.8)	21 (7.5)	4 (4.3)	8 (8.3)	9 (9.8)
Pharyngitis	17 (6.4)	11 (3.9)	3 (3.3)	3 (3.1)	5 (5.4)
Upper respiratory tract infection	31 (11.7)	34 (12.1)	10 (10.9)	15 (15.6)	9 (9.8)
Urinary tract infection	38 (14.3)	40 (14.3)	14 (15.2)	15 (15.6)	11 (12.0)
Headache	29 (10.9)	39 (13.9)	12 (13.0)	17 (17.7)	10 (10.9)
Hypertension	20 (7.5)	13 (4.6)	2 (2.2)	5 (5.2)	6 (6.5)

Serious Adverse Events (in >2 Subjects)

	Placebo N=266 n (%)	Pooled Active N=280 n (%)	200 mg Q4W N=92 n (%)	100 mg QW N=96 n (%)	200 mg QW N=92 n (%)
Herpes zoster	2 (0.8)	2 (0.7)	1 (1.1)	1 (1.0)	0
Pneumonia	4 (1.5)	3 (1.1)	0	1 (1.0)	2 (2.2)
Urinary tract infections	2 (0.8)	2 (0.7)	1 (1.1)	1 (1.0)	0
SLE	3 (1.1)	2 (0.7)	0	2 (2.1)	0
Deep vein thrombosis	2 (0.8)	3 (1.1)	0	2 (2.1)	1 (1.1)

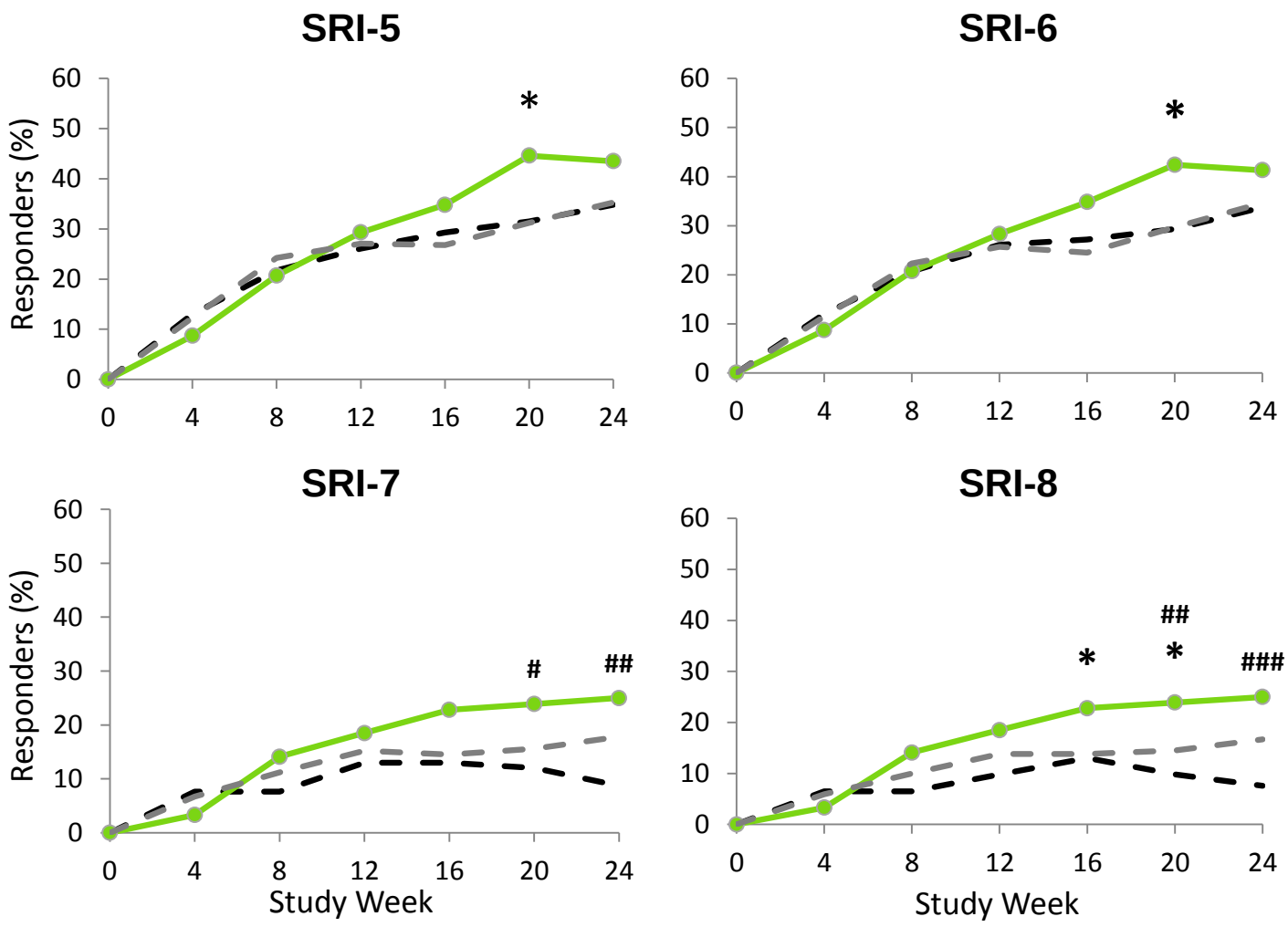
SLE Flare and Background Steroid Dose
(mITT Population)





Secondary Efficacy Results

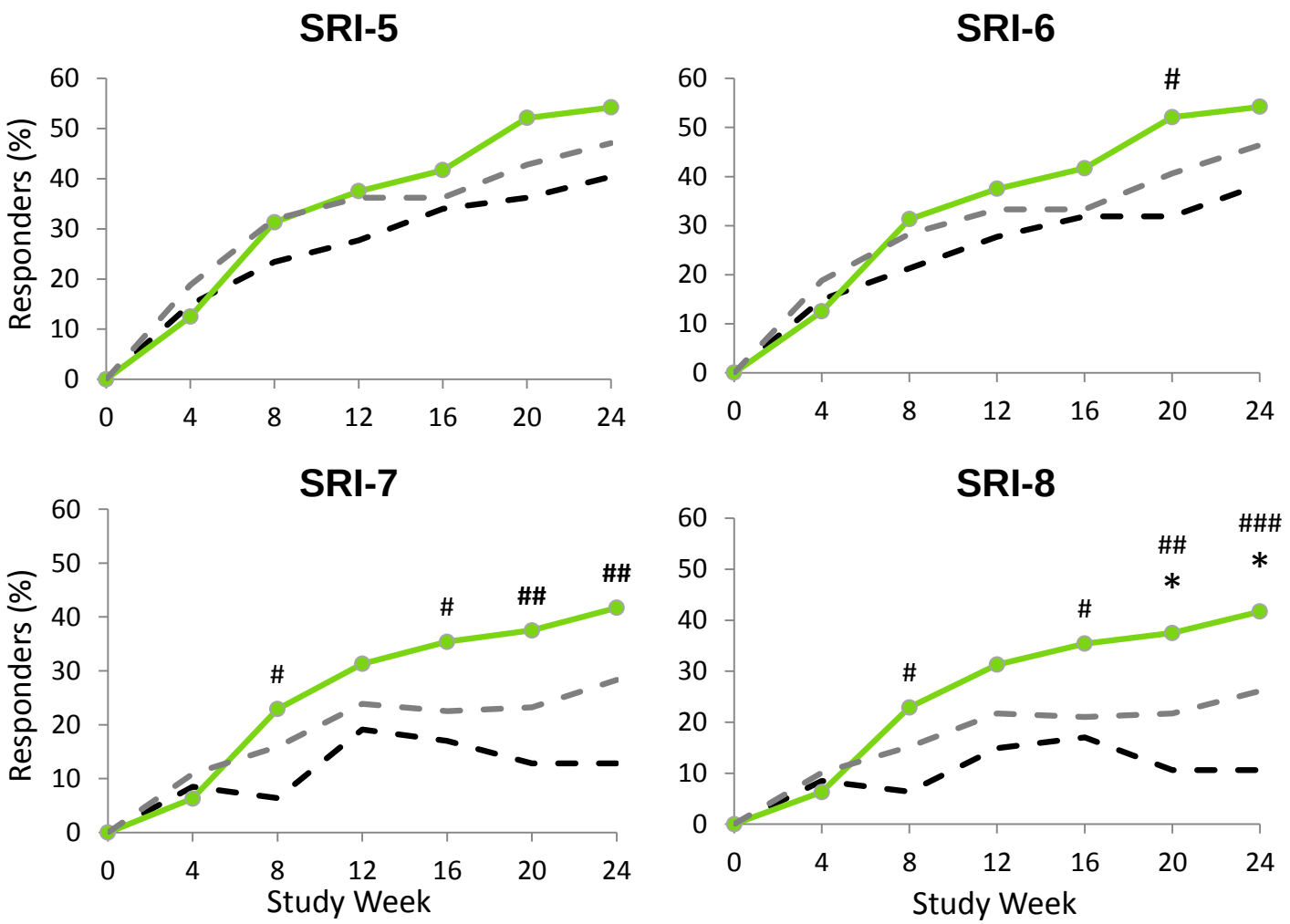
SRI Response in the mITT with SELENA-SLEDAI Improvements of ≥5, ≥6, ≥7 and ≥8



QW = Once weekly; *p<0.05; **p<0.01; ***p<0.001 vs pooled placebo.
#p<0.05; ##p<0.01; ###p<0.001 vs regimen-matched placebo

Secondary Efficacy Results

SRI Response in Subjects with SELENA-SLEDAI≥10 and Receiving Steroid at Baseline



QW = Once weekly; *p<0.05; **p<0.01; ***p<0.001 vs pooled placebo.
#p<0.05; ##p<0.01; ###p<0.001 vs regimen-matched placebo