Company presentation

April 2021

NASDAQ: ASLN

ASLAN PHARMACEUTICALS

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All statements other than statements of historical fact are forward-looking statements. The words "believe," "may," "might," "could," "will," "aim," "estimate," "continue," "anticipate," "intend," "expect," "plan," or the negative of those terms, and similar expressions that convey uncertainty of future events or outcomes are intended to identify estimates, projections and other forward-looking statements. Estimates, projections and other forward-looking statements speak only as of the date they were made, and, except to the extent required by law, the Company undertakes no obligation to update or review any estimate, projection or forward-looking statement.

Management team with global development experience

Position		Experience	
Dr Carl Firth CEO		AstraZeneca Head of New Portfolio (China) Head of BD (Asia)	Bank of America Merrill Lynch Head of Asia Healthcare Banking
Dr Ken Kobayashi CMO		Dermira A Wholly-Owned Subsidiary of Eli Lilly and Company Senior Medical Director	NOVARTIS Medical Director, Dermatology
Stephen Doyle CBO		Boehringer Ingelheim VP Specialty Care & Diabetes (China)	SANOFI VP Oncology (China)
Kiran Asarpota COO		GLOBAL BRANDS GROUP Group Finance Director	
Ben Goodger General Counsel		Osborne Clarke Senior Partner and Head of IP	EDWARDS WILDMAN Partner and Head of IP

Clinical-stage immunology biopharma developing innovative treatments to transform the lives of patients

Portfolio led by ASLAN004, a monoclonal antibody targeting IL-13Rα1, that has the potential to be best-in-disease for atopic dermatitis and asthma

Programs	Discovery	Preclinical	Phase 1	Phase 2	Anticipated milestones
Immunology					
ASLAN004 *IL-13Rα1 inhibitor*	Atopic dermatitis Asthma				• MAD topline data 3Q21 • Initiate Phase 2b in 2H21
ASLAN003 *DHODH inhibitor*	Autoimmune disease				
Discovery					
AhR antagonist[1]	Oncology				

1 Aryl hydrocarbon receptor, or AhR, program is being developed in an ASLAN majority-owned joint venture

ASLAN004: potential first-in-class antibody IL-13R

- We believe dermatologists and patients looking for additional AD treatment options – opportunity to improve on efficacy, safety and dose regimen
- ASLAN004 is a novel, first-in-class antibody targeting IL-13R, blocking both IL-4 and IL-13 signalling through the Type 2 receptor
- Emerging clinical data demonstrate competitive profile with the potential to differentiate over existing therapies
- Robust dose dependent efficacy profile showing improvement compared to placebo across all efficacy endpoints
- Well-tolerated at all doses tested
- Expansion cohort continues to recruit with full study readout expected in 3Q 2021, Phase 2b anticipated to initiate in 2H 2021

Interim data demonstrates a robust and differentiated safety and efficacy profile.

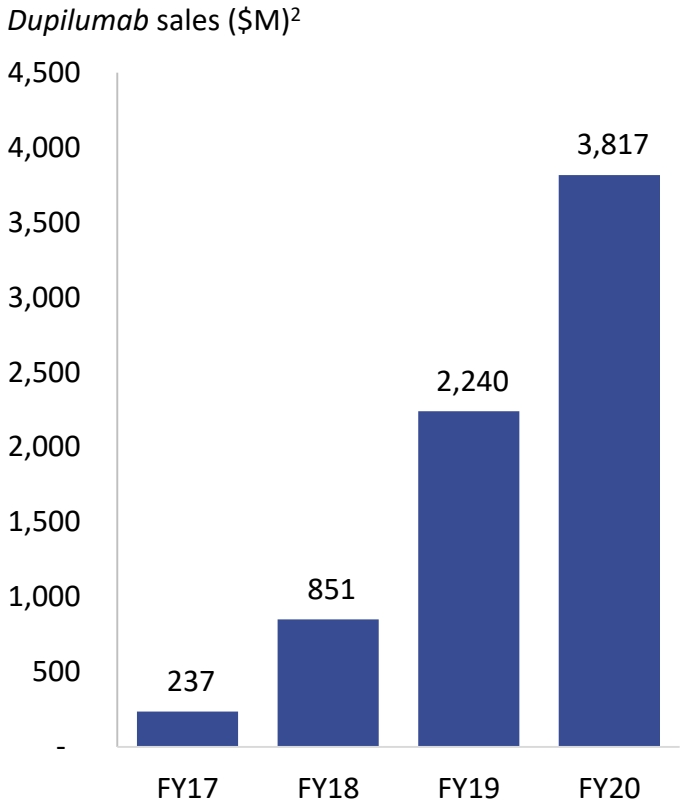
Atopic dermatitis is a chronic disease that can severely impact quality of life

Total AD prevalent cases

- Atopic dermatitis (AD) is a chronic inflammatory skin condition and the most common form of eczema
- Characterised by red inflamed skin and severe daytime and night-time itching
- Over 200 million AD patients worldwide
  - Prevalence estimated at 1-3% of adults worldwide
  - Up to 50% are moderate-to-severe patients

Dupilumab has advanced the standard of care for AD, but a significant unmet need remains

- There are few safe and effective treatments for moderate-to-severe AD
- Treatment traditionally focused on topical corticosteroids. Systemic steroids associated with safety risks
- Launch of *dupilumab* in 2017 helped drive a large market for systemic AD therapy
- *Dupilumab* establishing dual blockade of IL4/IL13 biologic therapy as the new standard of care
- Sanofi expects to grow sales to over $11B
- However, there remains a significant unmet need
  - Only 35% of patients treated with *dupilumab* achieved an optimal response[1]
  - Conjunctivitis common and can lead to treatment discontinuations
  - Opportunity to improve on biweekly dosing regimen



1 Spherix (2018) Atopic dermatitis ATU study
2 Sanofi's published quarterly financials

ASLAN004 is a potential first-in-class IL-13R antibody that has the potential to be best-in-disease

Target profile:

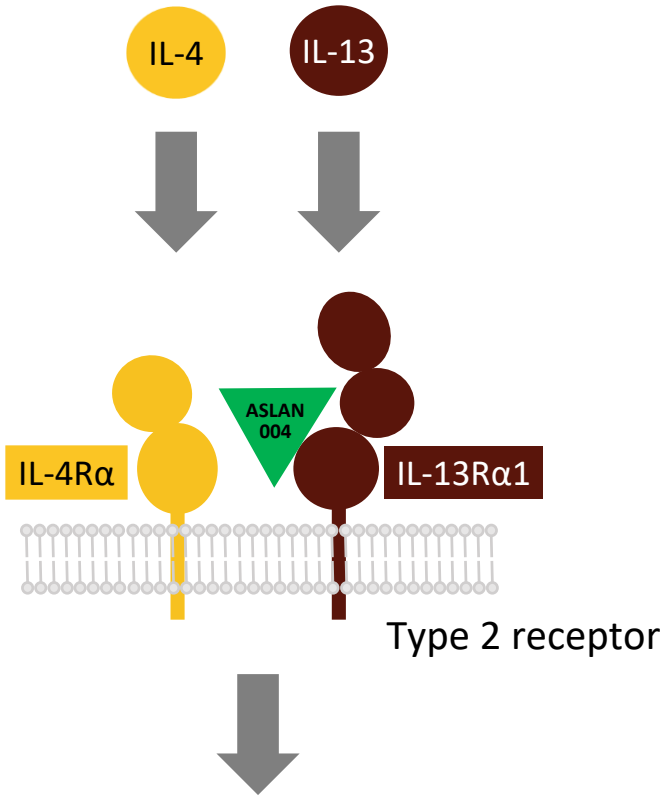
A drug that can deliver better efficacy over current standard of care

A drug that allows monthly dosing for patients improving convenience and compliance

A drug that addresses physician concerns on safety with lower rate of discontinuation

A drug with greater storage flexibility allowing it to be stored at room temperature

ASLAN004 is a potential first-in-class IL-13R antibody that selectively blocks the Type 2 receptor



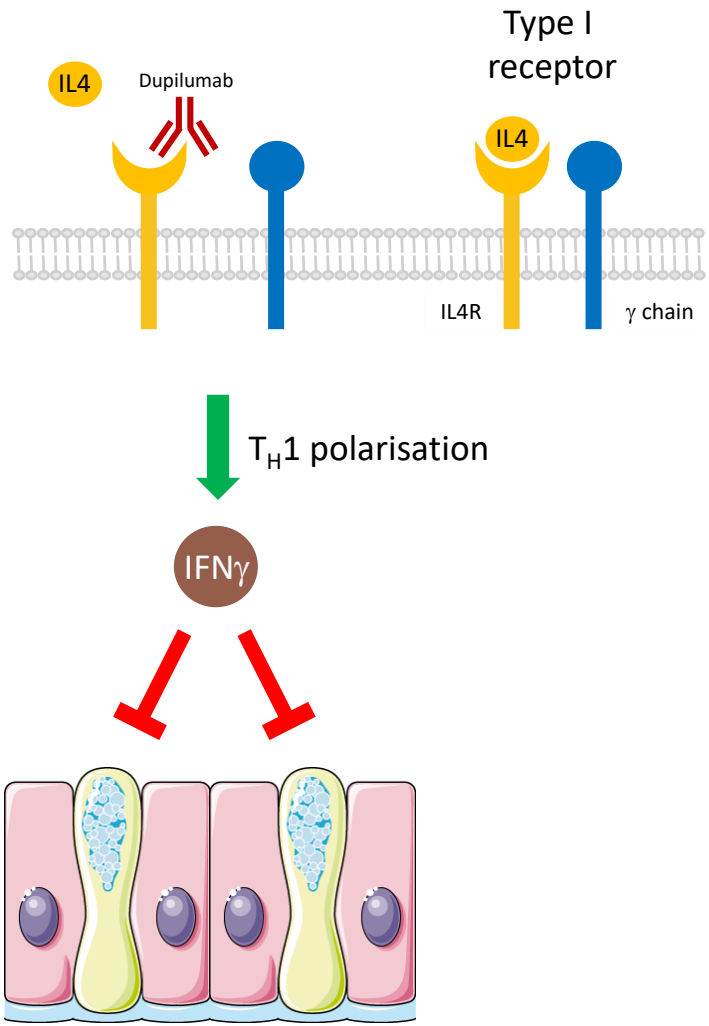
ASLAN004 is the only monoclonal antibody in the clinic targeting IL-13Rα1

- IL-4 and IL-13 are central to triggering allergy and symptoms of atopic dermatitis
- ASLAN004 blocks the Type 2 receptor, preventing signalling through both IL-4 and IL-13

Potential for improved efficacy, safety and dose regimen:

- Selectively targets the Type 2 receptor. Blocking the Type 1 receptor may lead to unwanted effects
- Stronger binding to receptor than *dupilumab* relative to its respective ligand, so pathway inhibition may be maintained at low drug concentrations

Dupilumab-associated conjunctivitis may be driven by inhibition of Type I receptor, which ASLAN004 does not bind

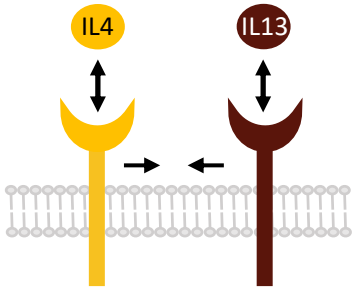


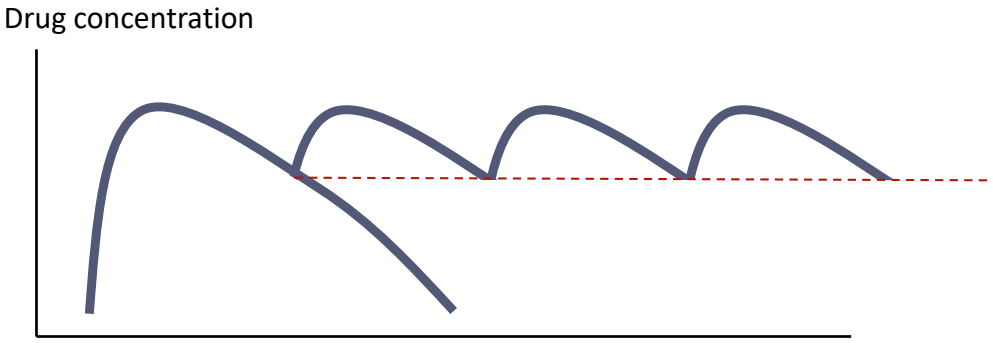
- *Dupilumab* blocks the Type I receptor
- This may drive T_H2 to T_H1 polarisation
- T_H1 cells product interferon gamma, which can lead to apoptosis of goblet cells
- This could lower the production of mucin and lead to development of dry eye and conjunctivitis

Source: Guttman-Yassky et al 2020. *JAMA Derm* 156:411

ASLAN004 binds more strongly to receptor than *dupilumab* relative to its respective ligand

Receptor	Ligand	K_D (nM)	Comments
IL-13Rα1	IL-13	30[1]	ASLAN004 has a 60 fold higher affinity for receptor than IL-13
IL-13Rα1	ASLAN004	0.5	
IL-4Rα	IL-4	0.1[1]	*Dupilumab* only has a 3 fold higher affinity for receptor than IL-4
IL-4Rα	*Dupilumab*	0.03	





ASLAN004 offers a greater affinity difference between ligand and receptor binding which may translate to lower required concentration *in vivo* and may provide improved dosing frequency and efficacy

1 Kraich et al (2006) BMC Biology 4:13

Trial design of MAD / PoC study in moderate-severe AD

- Double-blind, randomised, placebo-controlled study
- Patients dosed weekly via subcutaneous injection for 8 weeks with a 12-week recovery period
- Interim data from cohorts 1 to 3

Moderate-to-severe atopic dermatitis patients (N ≈ 50)

Cohort 1 – 200mg QW (ASLAN004 N ≈ 6, placebo N ≈ 2)

Cohort 2 – 400mg QW (ASLAN004 N ≈ 6, placebo N ≈ 2)

Cohort 3 – 600mg QW (ASLAN004 N ≈ 6, placebo N ≈ 2)

Expansion cohort 600mg QW (ASLAN004 N ≥ 16, placebo N ≥ 8)

Primary endpoints are safety and tolerability

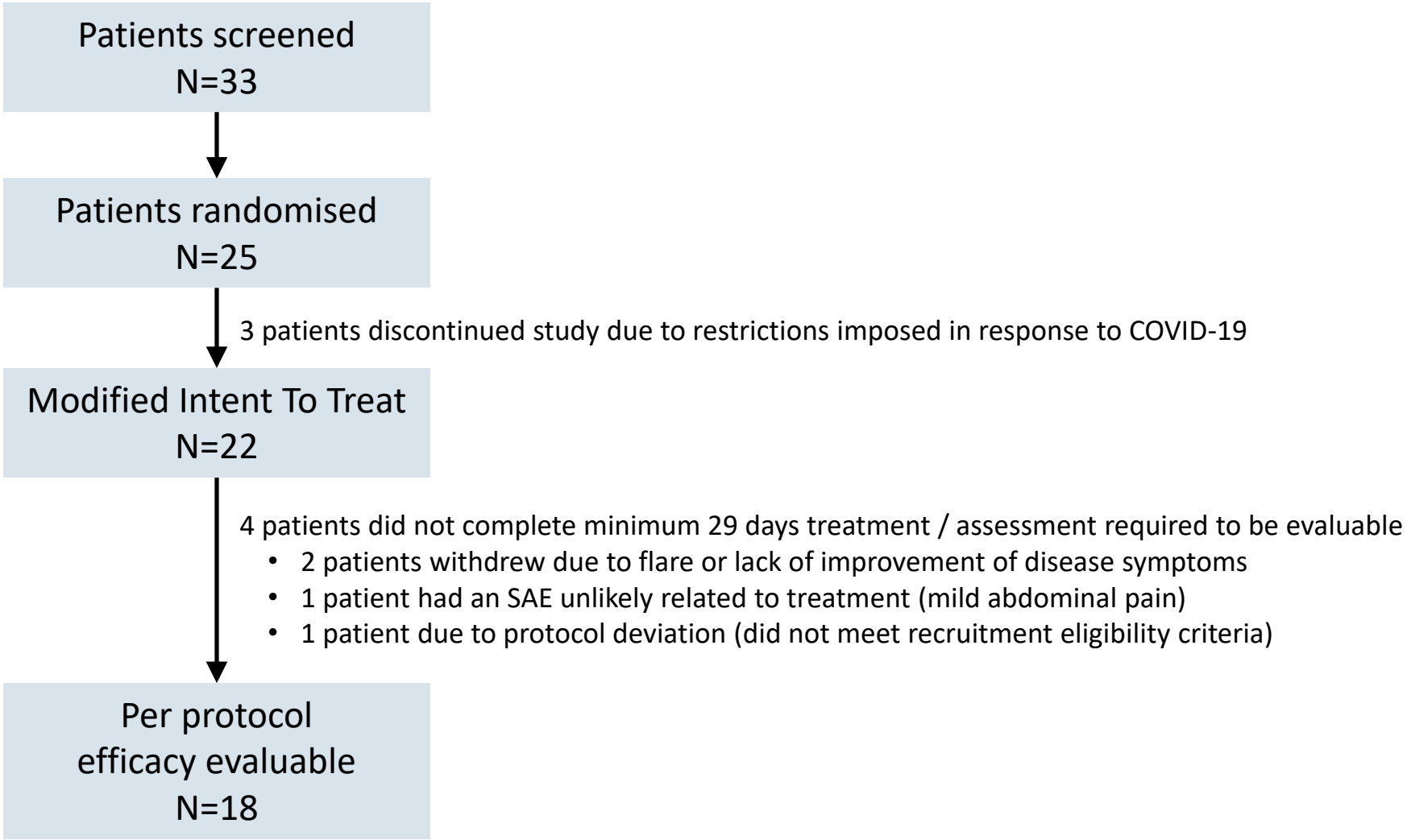
Secondary endpoints include percentage change from baseline in EASI score, pruritus score and IGA, and biomarkers TARC and IgE

Study has 80% power to detect 39% improvement in EASI from baseline, compared to placebo, based on a one-sided 5% significance level

Key inclusion criteria:

- Chronic AD present for ≥3 years before screening visit
- EASI score ≥16 at screening and baseline
- IGA score ≥3 (scale of 0 to 4) at screening and baseline
- ≥10% body surface area (BSA) of AD involvement at screening and baseline

Study recruitment



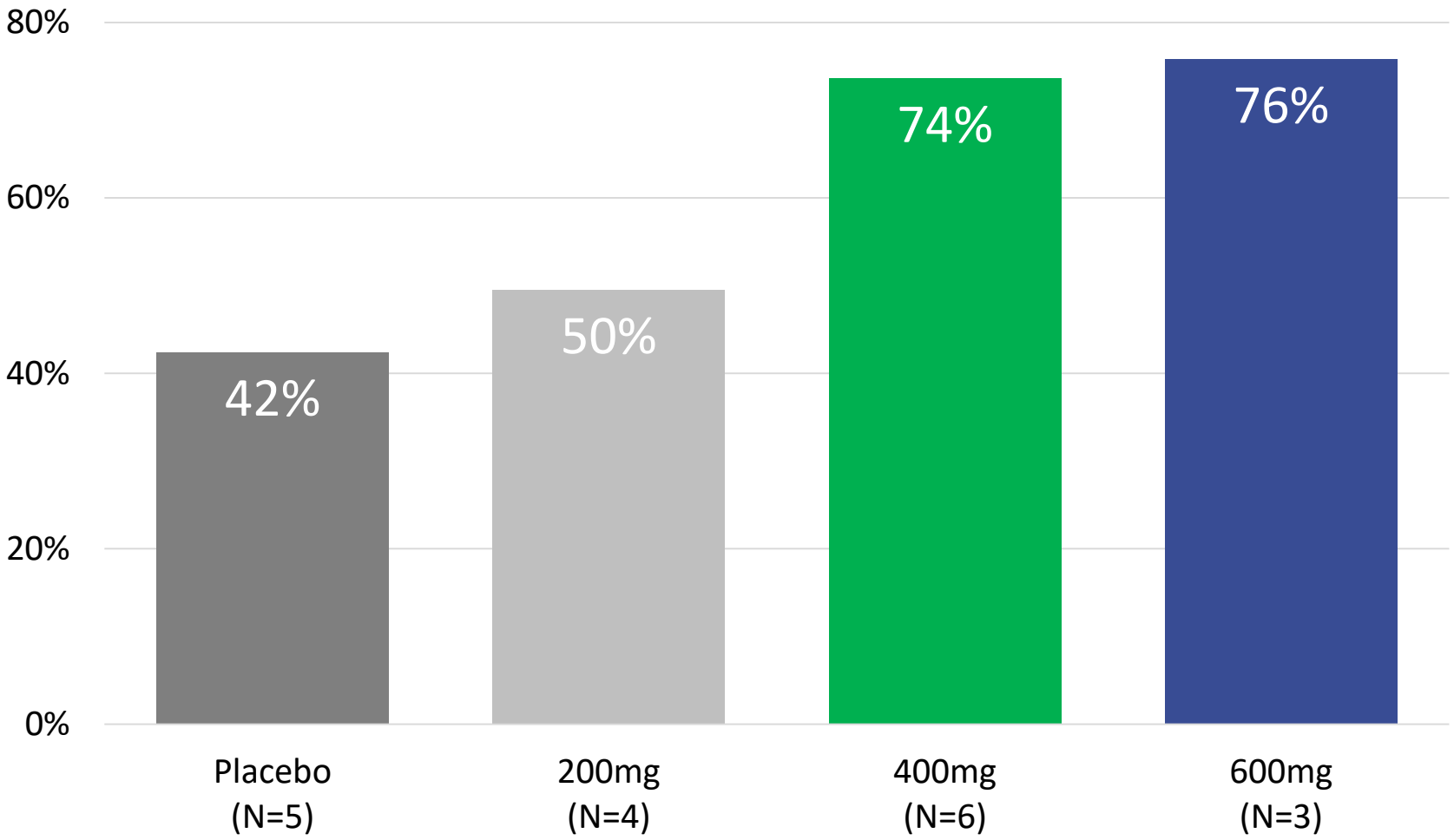
Selected baseline patient characteristics

Per protocol efficacy evaluable (N=18)	200mg (N=4)	400mg (N=6)	600mg (N=3)	Placebo (N=5)
Age (years)	32.5	28.3	42.0	33.8
Mean EASI score	32.9	30.9	32.5	33.9
Mean BMI	25.8	25.4	24.2	25.4
Patients with IGA 3 / IGA 4	50 / 50 %	83 / 17 %	33 / 67 %	40 / 60 %
Mean BSA	55.5%	59.8%	56.3%	59.8%
Mean peak pruritus NRS score	7.4	7.3	6.4*	7.4

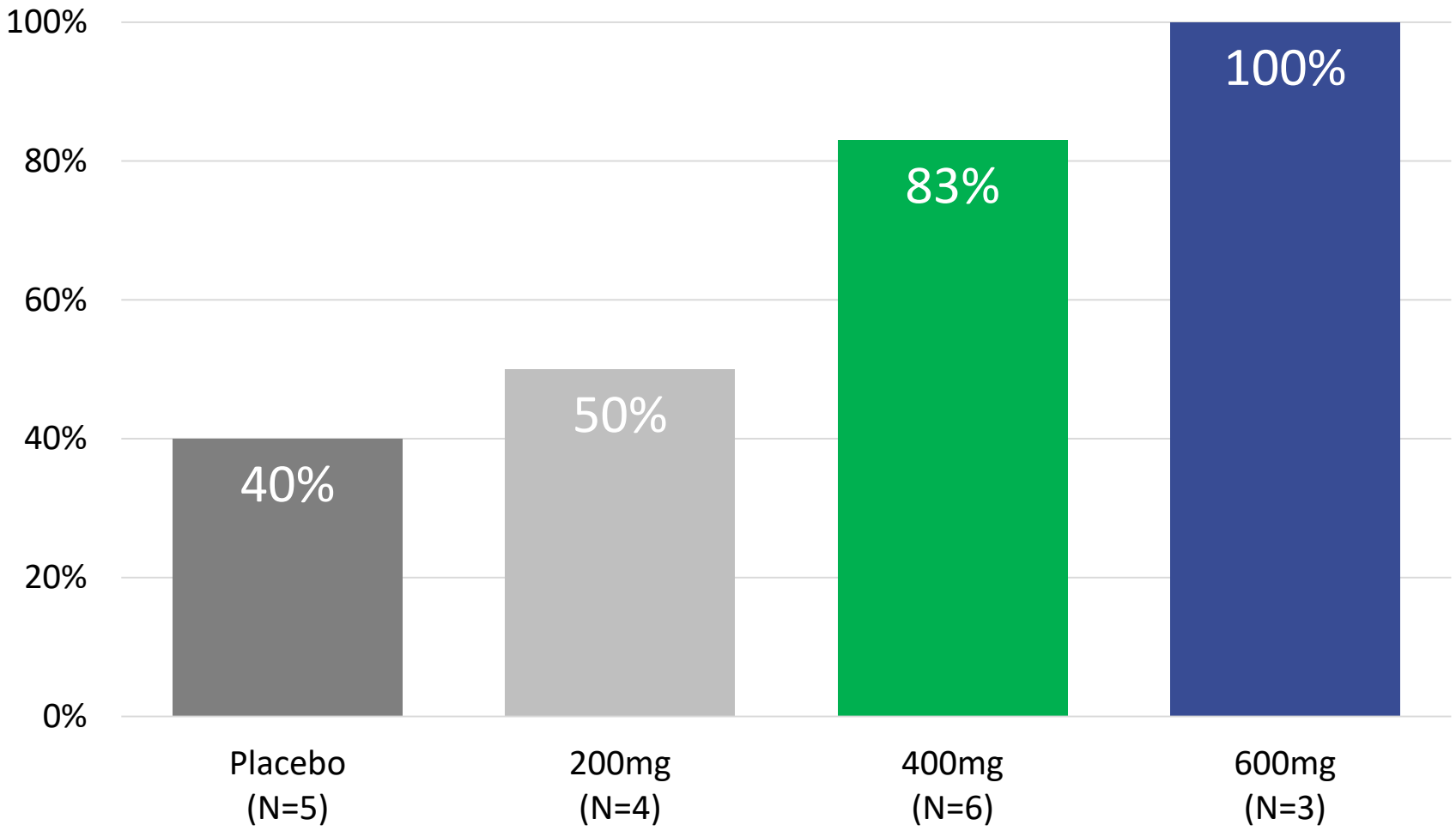
Abbreviations
EASI: Eczema Area and Severity Index
IGA: Investigator Global Assessment
BSA: Body Surface Area
NRS: Numerical Rating Scale

* N=2 as one subject did not have a baseline value

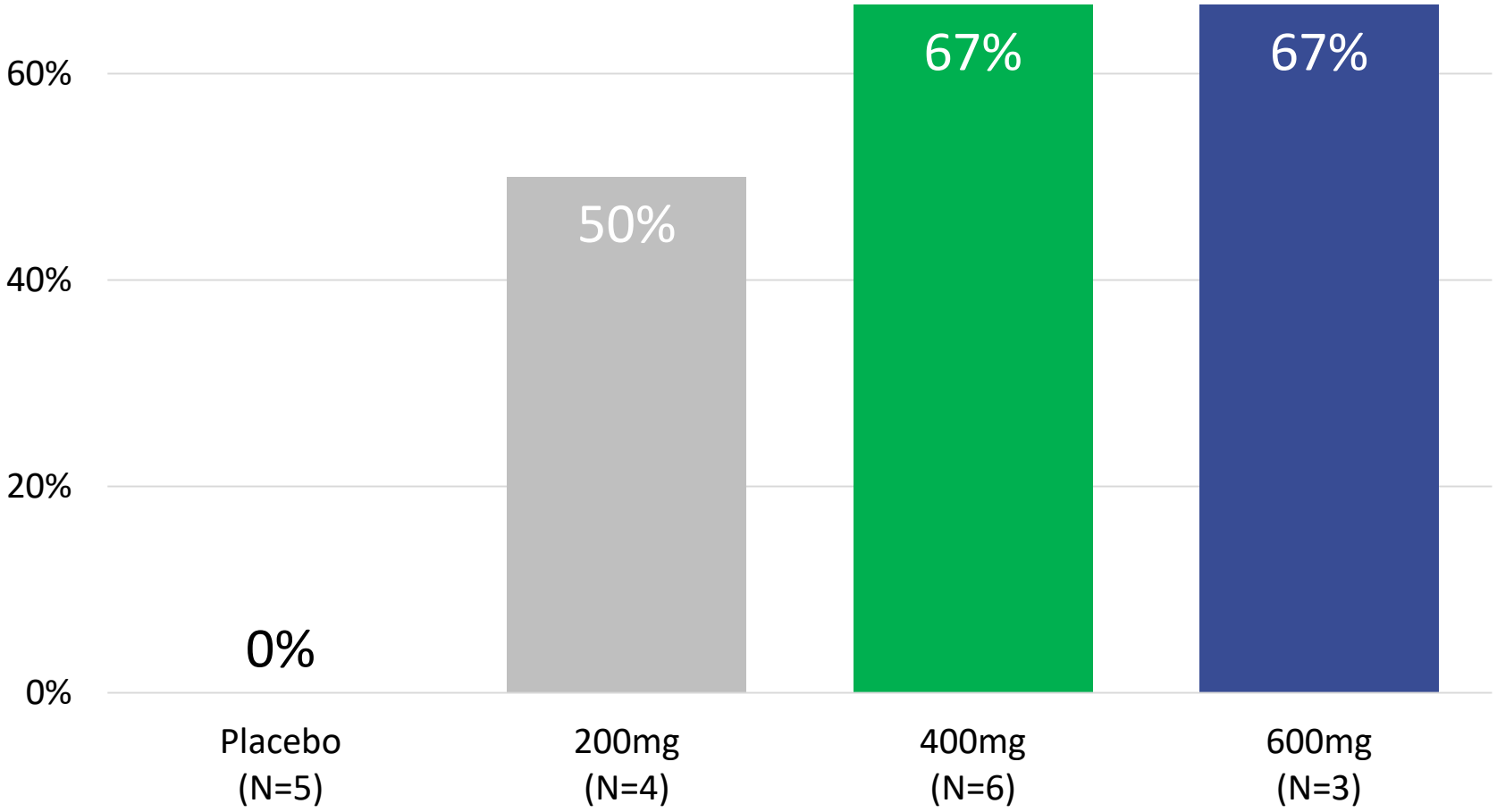
Mean reduction in EASI from baseline (Week 8)



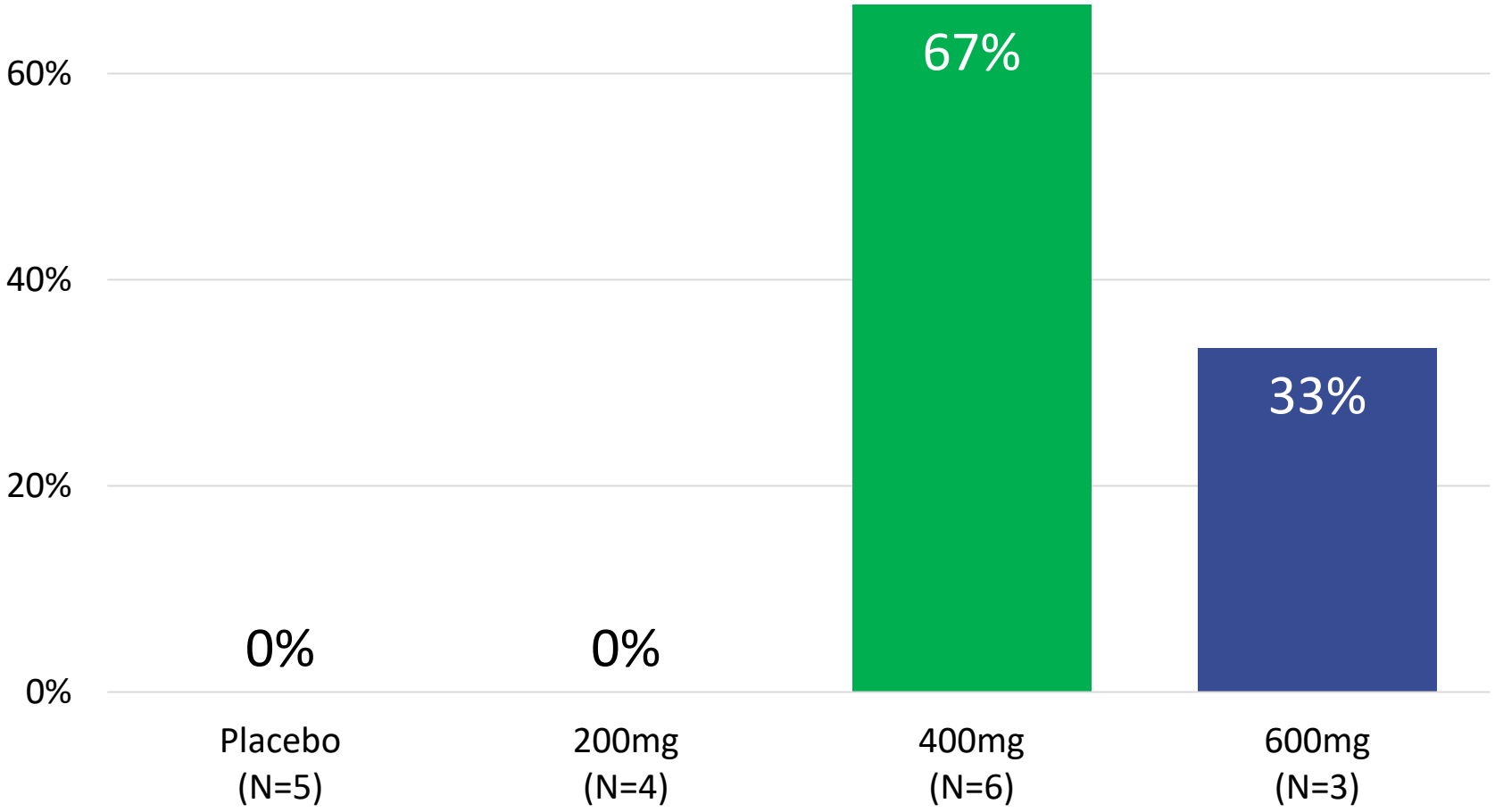
EASI-50 (Week 8)



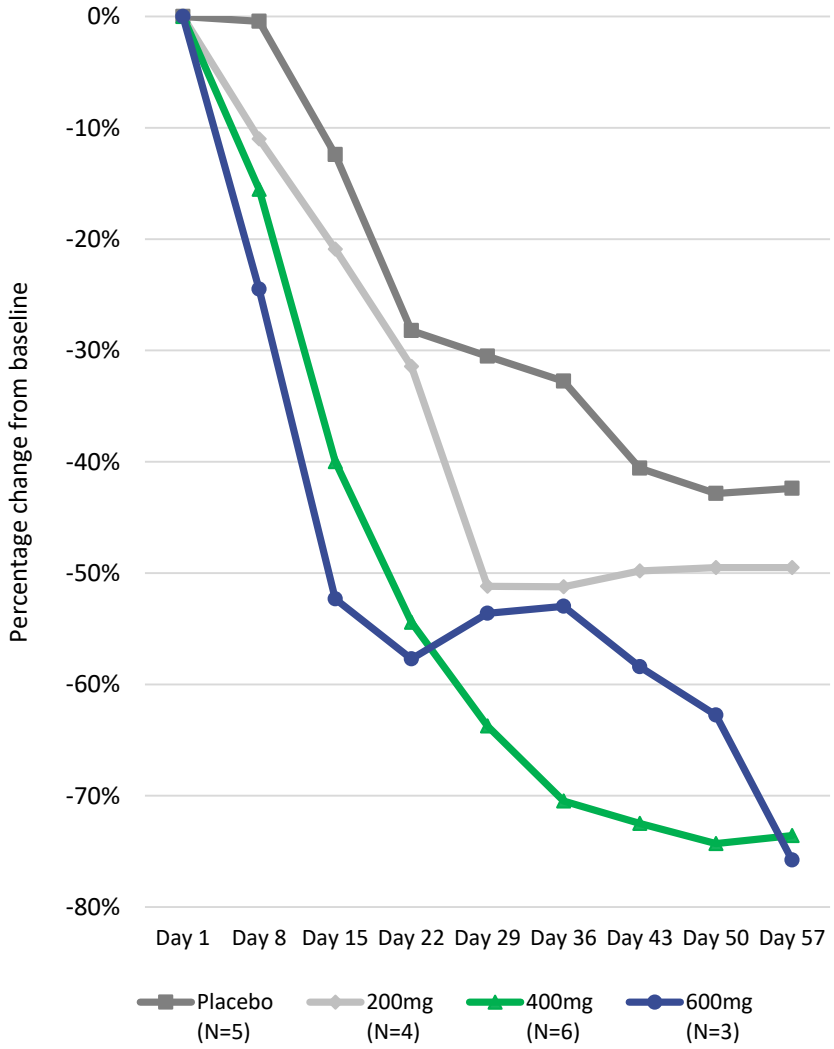
EASI-75 (Week 8)

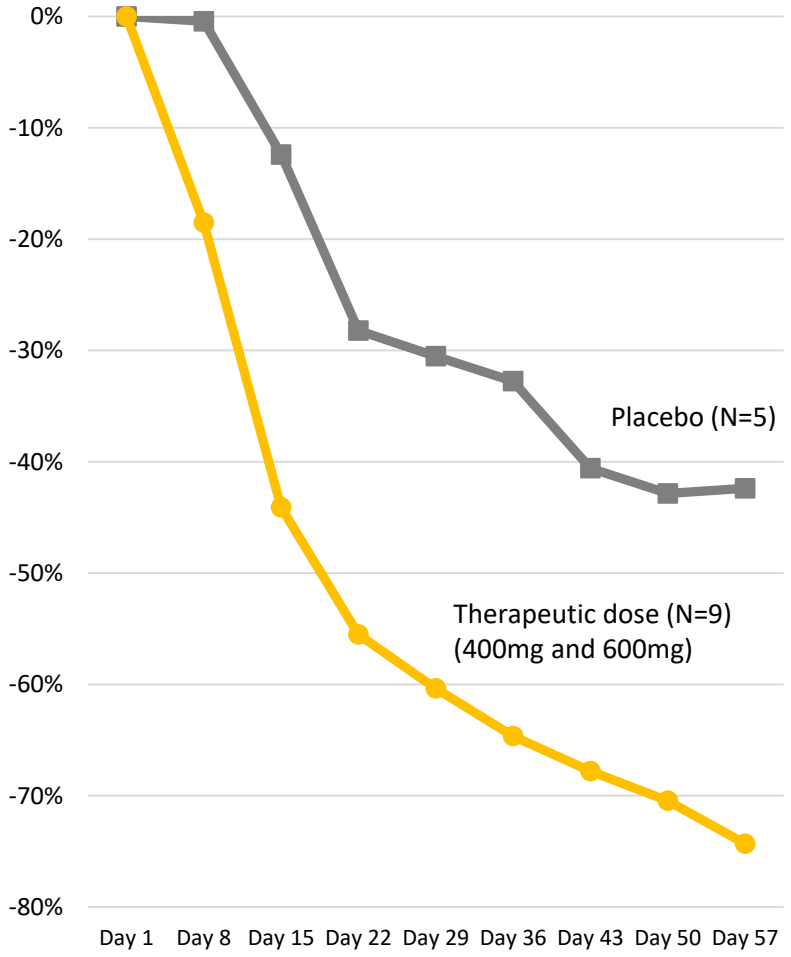


EASI-90 (Week 8)

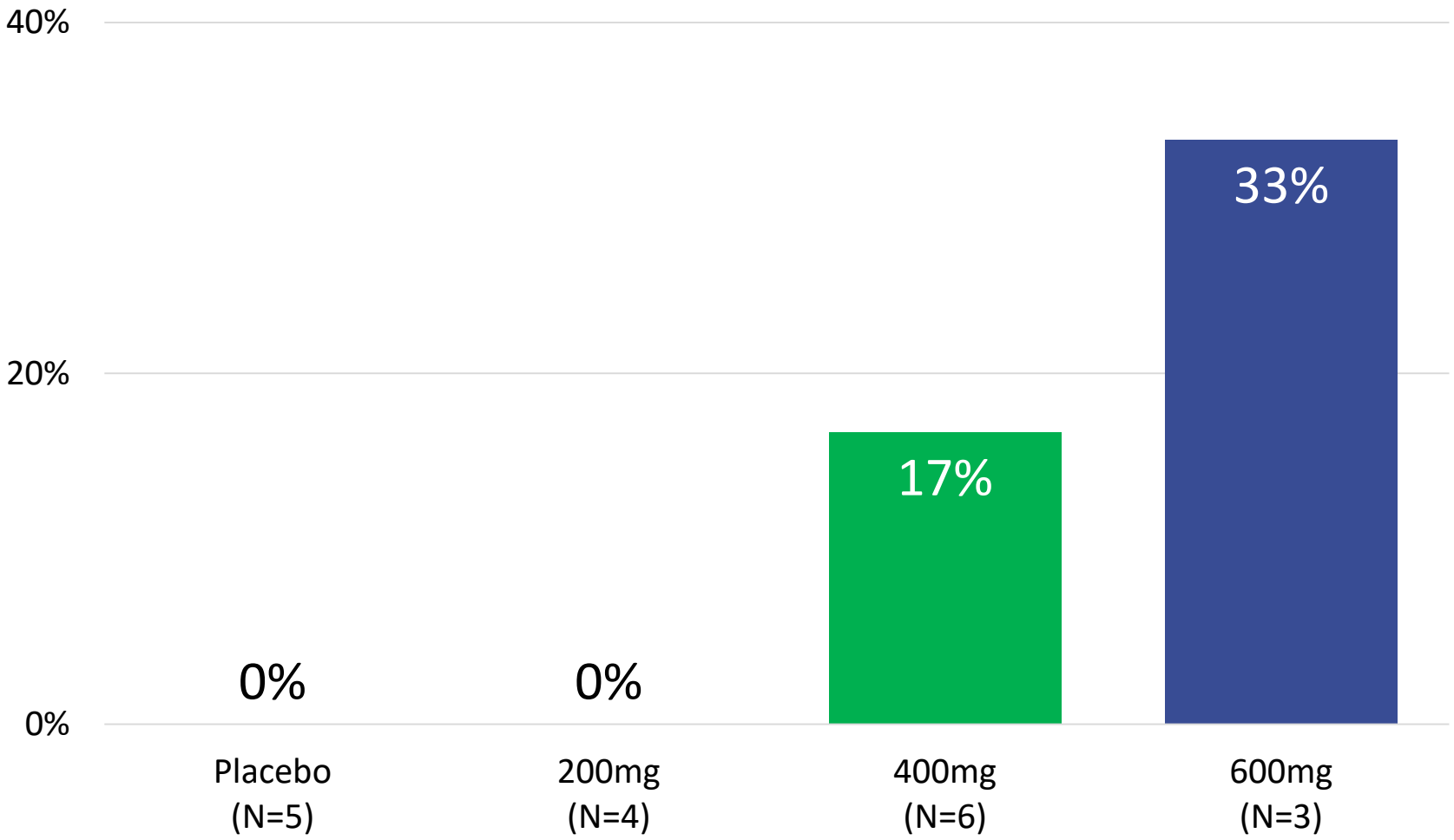


EASI score over time

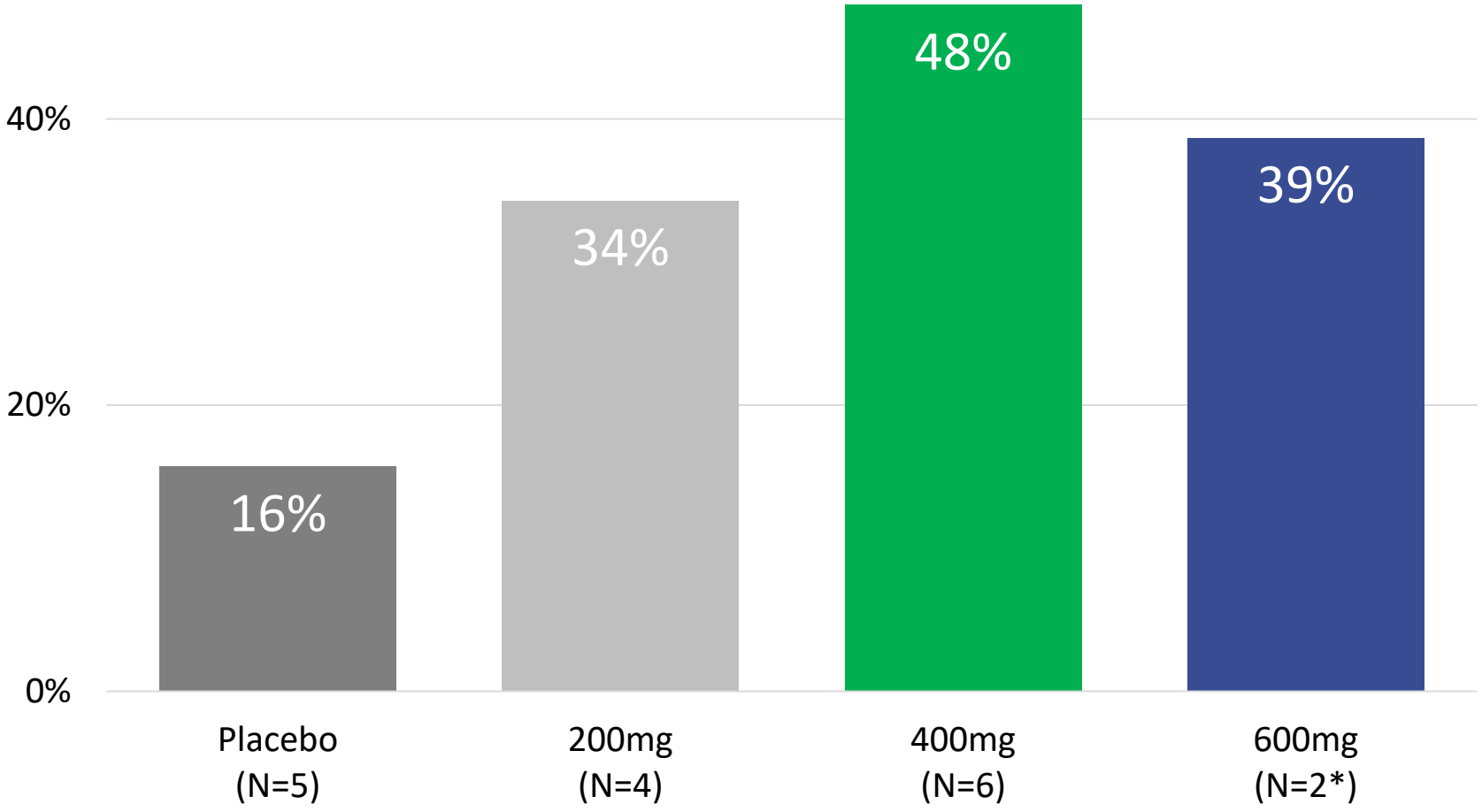




Patients achieving IGA 0/1 (Week 8)

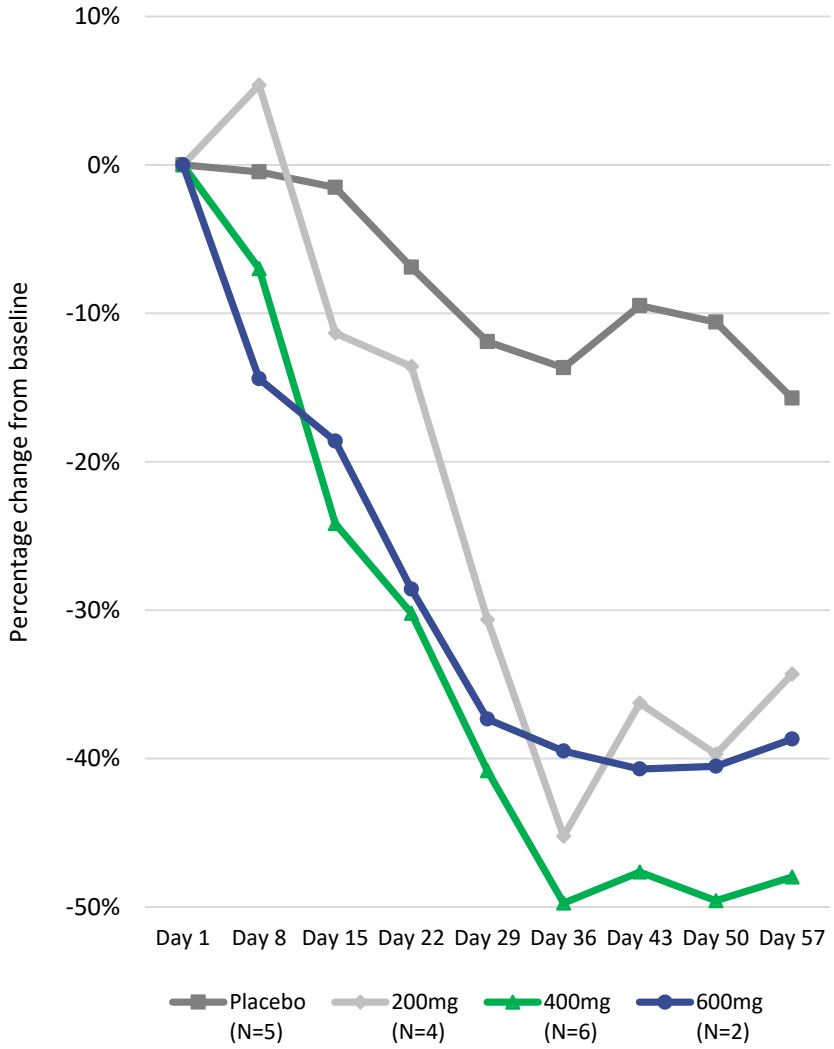


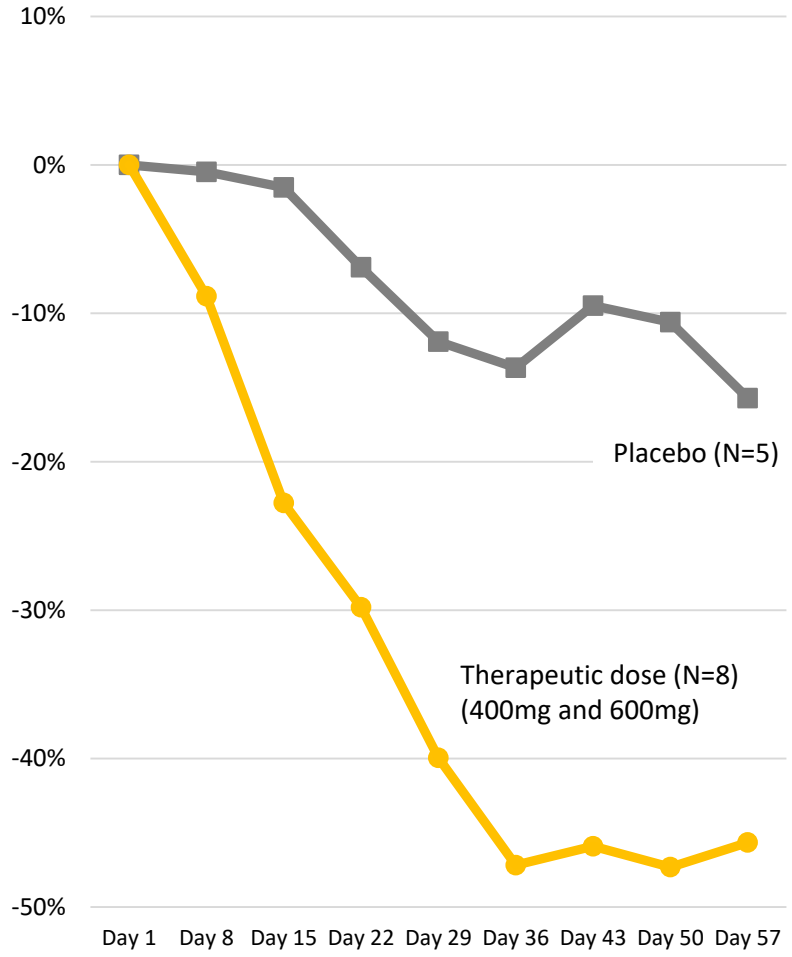
Mean reduction in peak P-NRS from baseline (Week 8)



* One subject did not have a baseline value

Peak P-NRS over time





ASLAN004 well-tolerated at all dose levels

Treatment Emergent Adverse Event (TEAE) by category	200mg (N=5)	400mg (N=8)	600mg (N=5)	All doses (N=18)	Placebo (N=7)
Any	5 (100%)	8 (100%)	3 (60.0%)	16 (88.9%)	5 (71.4%)
Related	5 (100%)	6 (75.0%)	2 (40.0%)	13 (72.2%)	5 (71.4%)
Moderate/severe	2 (40.0%)	2 (25.0%)	1 (20.0%)	5 (27.8%)	3 (42.9%)
Serious adverse event (SAE)	0 (0%)	1 (12.5%)	0 (0%)	1 (5.6%)	0 (0%)
Drug-related AEs of interest*:					
Injection site reaction	1 (20.0%)	3 (37.5%)	0 (0%)	4 (22.2%)	2 (28.6%)
Conjunctivitis	0 (0%)	1 (12.5%)	1 (20.0%)	2 (11.1%)	0 (0%)

- There were no drug-related TEAEs that led to discontinuation
- SAE was mild abdominal pain, classified as unlikely related
- Conjunctivitis was classified as mild. Patients had prior history of allergy or allergic conjunctivitis.

* Drug-related defined as definitely related, probably related or possibly related

Opportunity for better treatment options for patients

	Categories	Dupilumab Ph3[1] (300mg QW)		Dupilumab Ph3[1] (300mg Q2W)		Lebrikizumab Ph2b[5] (250mg Q2W)		
		SOLO1	SOLO2	SOLO1	SOLO2			
Baseline characteristics	Age (years) – mean	39.3 vs 39.5[2]	37.1 vs 37.4[4]	39.8 vs 39.5[2]	36.9 vs 37.4[4]	38.9 vs 42.2		
	EASI score – mean	33.2 vs 34.5[2]	31.9 vs 33.6[4]	33.0 vs 34.5[2]	31.8 vs 33.6[4]	25.5 vs 28.9		
	Patients with IGA 4	48% vs 49%	47% vs 49%	48% vs 49%	49% vs 49%	29% vs 39%		
	BSA – mean	56% vs 58%[2]	52% vs 54%[4]	55% vs 58%[2]	53% vs 54%[4]	40% vs 47%		
	Pruritis NRS – mean	7.2 vs 7.4[2]	7.5 vs 7.5[4]	7.2 vs 7.4[2]	7.6 vs 7.5[4]	7.6 vs 7.4		
Efficacy	Efficacy at	16 weeks	16 weeks	16 weeks	16 weeks	4 weeks	8 weeks	16 weeks
	% change in EASI	-72% vs -38%	-69% vs -31%	-72% vs -38%	-67% vs -31%	-50% vs -25%[6]	-64% vs -31%[6]	-73% vs -41%[6]
	EASI-50	61% vs 25%	61% vs 22%	69% vs 25%	65% vs 22%	NA	NA	81% vs 46%
	EASI-75	52% vs 15%	48% vs 12%	51% vs 15%	44% vs 12%	30% vs 3%[6]	46% vs 17%[6]	61% vs 24%[6]
	EASI-90	33% vs 8%	31% vs 7%	36% vs 8%	30% vs 7%	14% vs 1%[6]	30% vs 4%[6]	44% vs 11%[6]
	Patients achieving IGA 0/1	37% vs 10%	36% vs 8%	38% vs 10%	36% vs 8%	14% vs 0%[6]	31% vs 5%[6]	45% vs 15%[6]
	% change in Pruritis NRS	-49% vs -26%	-48% vs -15%	-51% vs -26%	-44% vs -15%	-39% vs -25%[6]	-46% vs -22%[6]	-62% vs 7%[6]
Safety and tolerability	Serious AE	1% vs 5%	3% vs 6%	3% vs 5%	2% vs 6%	3% vs 4%		
	Conjunctivitis	8% vs 2%[3]	7% vs 2%[3]	12% vs 2%[3]	7% vs 2%[3]	3% vs 0%[7]		

Numbers in table refer to drug vs placebo

1 Simpson et. al, NEJM 1 October 2016 (unless otherwise stated)

2 https://clinicaltrials.gov/ct2/show/results/NCT02277743

3 Includes allergic conjunctivitis, conjunctivitis, conjunctivitis bacterial and conjunctivitis viral as reported in the supplementary appendix of the source document

4 https://clinicaltrials.gov/ct2/show/results/NCT02277769

5 Guttman-Yassky et al, JAMA Dermatology, 26 Feb 2020 (unless otherwise stated)

6 Lebrikizumab Program Update, 17 October 2019 by Dermira

7 Includes conjunctivitis, conjunctivitis bacterial and conjunctivitis allergic as reported in the source document

Summary of positive interim data and next steps

Interim analysis summary

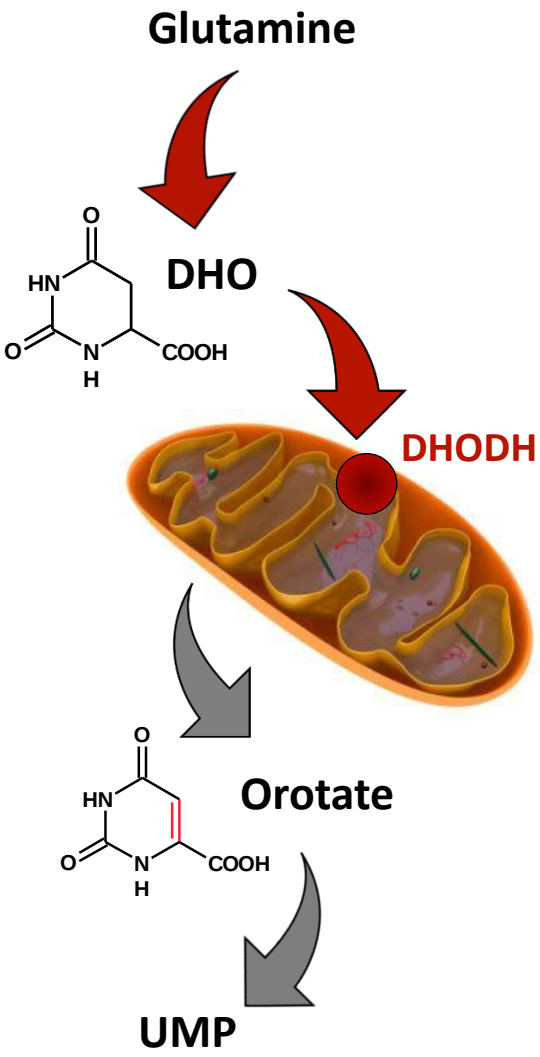
- 74% average reduction in EASI from baseline at therapeutic doses (400mg and 600mg) after 8 weeks
  - 89% of patients achieved EASI-50
  - 56% achieved EASI-90
- Data supportive of ASLAN004's potential as a novel, first-in-class antibody targeting IL-13R with differentiated efficacy and safety profile

Next steps

- Expansion cohort ongoing
  - Targeting the recruitment of at least 24 patients
  - Readout expected 3Q 2021
- Phase 2b planning underway, expected to initiate in 2H 2021
- Prioritising additional indications for potential new studies in 2H 2021

ASLAN003

ASLAN003 is an orally active, potent inhibitor of DHODH



- Rate-limiting step in the *de novo* synthesis of pyrimidines by the mitochondria
- Inhibition of DHODH reduces the pyrimidine pool used by cells with high metabolic activity
- Normal cells utilising the pyrimidine salvage pathway remain unaffected
- Reduces pro-inflammatory cytokines
- Inhibits proliferation of metabolically active cells such as:

→ Immune cells which may attack native tissue (**autoimmune** → eg MS, RA)

→ Cells affected by infectious agents (**infectious disease** → eg COVID-19)

→ Dysfunctional or malignant cells (**oncology** → eg AML/MDS)

ASLAN003 has the potential to be best-in-class for autoimmune disease

- DHODH an effective target in MS and RA treatment (Aubagio, Arava)
  - Aubagio $2.2B global sales in 2019, part of a $23B global MS market[1]
- ASLAN003 was designed to be more potent and to address the toxicities associated with first generation inhibitors (*leflunomide*, *teriflunomide*)
  - Superior *in vitro* potency as compared with other DHODH inhibitors
  - Selective against a panel of 195 enzymes, ion channels and receptor binding assays
  - *In vitro* studies demonstrated ASLAN003 has lowest potential for hepatotoxicity out of 6 approved and clinical stage DHODH inhibitors
- Active in the multiple sclerosis EAE model and rheumatoid arthritis AIA model
- Well tolerated in 119 subjects in Phase 1 and Phase 2 clinical trials
- PK profile suitable for once-daily dosing

Assay used to measure IC_{50}	ASLAN003 (µM)	*Teriflunomide* (µM)
Enzymatic DHODH inhibition	0.035	1.1
Human PBMC proliferation inhibition	1.4	46
IFN_{γ} inhibition in human whole blood	2.5	259

[1] Datamonitor Healthcare

Financials

Financials

Ticker	NASDAQ: ASLN	
Shares outstanding[1]	69.2M	(as of December 31, 2020 pro forma)
Net operating cash used	US$ 5.1M	(Q4 2020)
Cash balance	US$ 112.2M	(as of December 31, 2020 pro forma)
Recent financings	US$ 69.0M raised in Mar 2021 via public offering US$ 18.0M raised in Feb 2021 via private placement	

1 American Depositary Shares (or equivalent)