Company presentation

November 2020

NASDAQ: ASLN

ASLAN PHARMACEUTICALS

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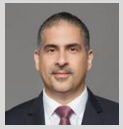
All statements other than statements of historical fact are forward-looking statements. The words "believe," "may," "might," "could," "will," "aim," "estimate," "continue," "anticipate," "intend," "expect," "plan," or the negative of those terms, and similar expressions that convey uncertainty of future 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

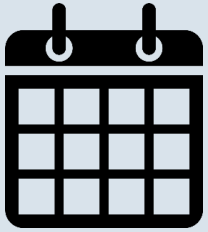
Programs	Discovery	Preclinical	Phase 1	Phase 2	Anticipated milestones
Immunology					
ASLAN004 *IL-13Rα1 inhibitor*	Atopic dermatitis Asthma				• MAD interim data early 2021 • MAD completion 1H 2021
ASLAN003 *DHODH inhibitor*	Autoimmune disease				
Discovery					
AhR antagonist[1]	Oncology				

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

ASLAN004: the potential to lead a $21B market

- Atopic dermatitis (AD) is a large and growing market predicted to exceed $21 billion by 2027
- Biologics are changing the treatment paradigm in atopic dermatitis
- Dermatologists indicate the need for new, differentiated therapies

- ASLAN004 is a first-in-class inhibitor of the IL13 receptor and has the potential to be a best-in-disease therapy for AD
- Potential for improved efficacy, fewer adverse events and monthly dosing
- ASLAN004 is the only drug besides *dupilumab* to provide dual IL4/IL13 blockade, a validated approach which is becoming standard of care for moderate-to-severe AD
- Potential in asthma and other indications driven by allergic inflammation



- Phase 1 SAD in healthy volunteers complete. No significant adverse events noted to date. Profile may allow for monthly dosing
- Currently recruiting third cohort in MAD / PoC study. Early efficacy data encouraging. Expected completion in 1H 21
- Phase 2B to start in 2021

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

Market is being driven by biologics and systemic therapies

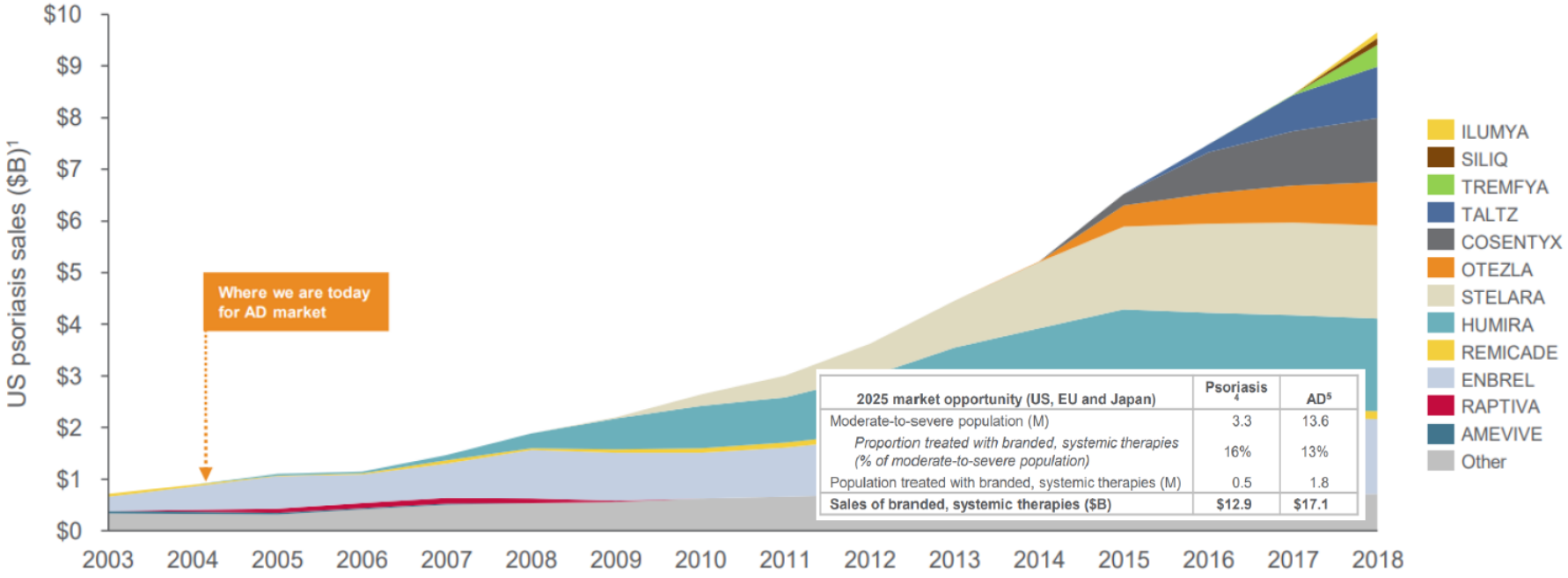
- There are few safe and effective treatments for moderate-to-severe AD
- Treatment traditionally focused on topical corticosteroids
- Systemic steroids associated with safety risks
- *Dupilumab* (approved in 2017) is the only biologic therapy available today
- *Dupilumab* has set a new standard for treating AD, but physicians are looking for better safety, improved efficacy, dosing regimen and convenience

Comparison of treatment options approved and in development for moderate-to-severe AD

	Efficacy	Safety	Dosing	Convenience	Possible use (if approved)
Target profile	+++	+++	+++	+++	
Dupilumab (IL4R)	++	++	+	+	Standard of care for systemic therapy
IL13 *eg lebrikizumab*	+	+++	+/++	?	When dupi can't be tolerated?
Pan-JAK eg *baricitinib*	+++	-	++	+++	
JAK-selective eg *abrocitinib*	+++	-/+	++	+++	When dupi fails?

AD is where the psoriasis market was 15 years ago

- The US psoriasis market grew from $1bn to $10bn in 15 years driven by the launch of biologics
- The AD landscape is poised for similar growth driven also by novel biologics
- AD market expected to exceed $21 billion by 2027

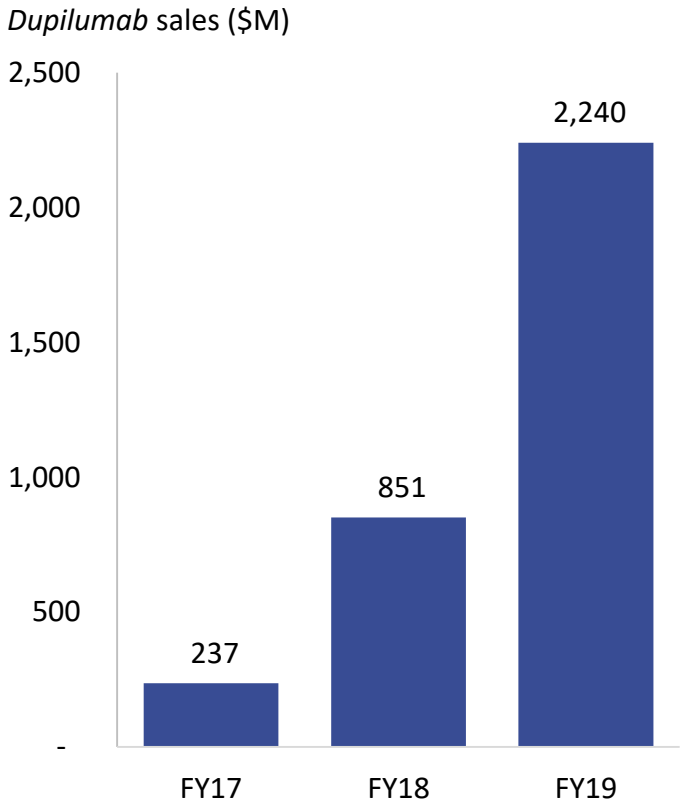


2025 market opportunity (US, EU and Japan)	Psoriasis[4]	AD[5]
Moderate-to-severe population (M)	3.3	13.6
Proportion treated with branded, systemic therapies (% of moderate-to-severe population)	16%	13%
Population treated with branded, systemic therapies (M)	0.5	1.8
Sales of branded, systemic therapies ($B)	**$12.9**	**$17.1**

Source: Decision Resources

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

- 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 intends 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

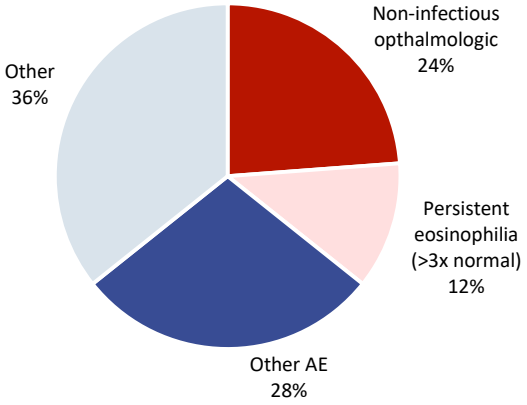
Real world studies suggest conjunctivitis and eosinophilia may be more common and lead to treatment discontinuations

- In a review of 29 clinical studies, rates of conjunctivitis varied from 9 to 22%[1]
- Data from real world studies suggest rates in clinical practice may be much higher[2,3]
- Onset of conjunctivitis can be from weeks to months[1]
- In a recent retrospective study of 241 patients on *dupilumab:*
  - 38% of patients experienced conjunctivitis and 56% eosinophilia
  - 17% patients discontinued treatment mostly because of safety

Retrospective study of 241 AD patients taking *dupilumab*[2]

Adverse event	Patients (%)	
At least 1 AE	171	(71)
Noninfectious ophthalmologic	107	(49)
Conjunctivitis	84	(38)
Ocular pruritus	52	(24)
Blepharitis	31	(14)
Xerophthalmia	27	(12)
Keratitis	14	(6)
Eosinophilia	100	(56)
Over 3x normal[4]	28	(30)

Reasons for discontinuation in 42 patients:



1 Agnihotri et al, 2019. *Drugs in R&D*. 19:311
2 Faiz et al, 2019. *JAAD*. 81:143. 241 moderate-to-severe AD pts collected in 2017 and 2018
3 Wollenberg et al, 2018. *J Allergy Clin Imm Pract*. 6:1778
4 Over 1500 cells/mm^3

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

Target profile:

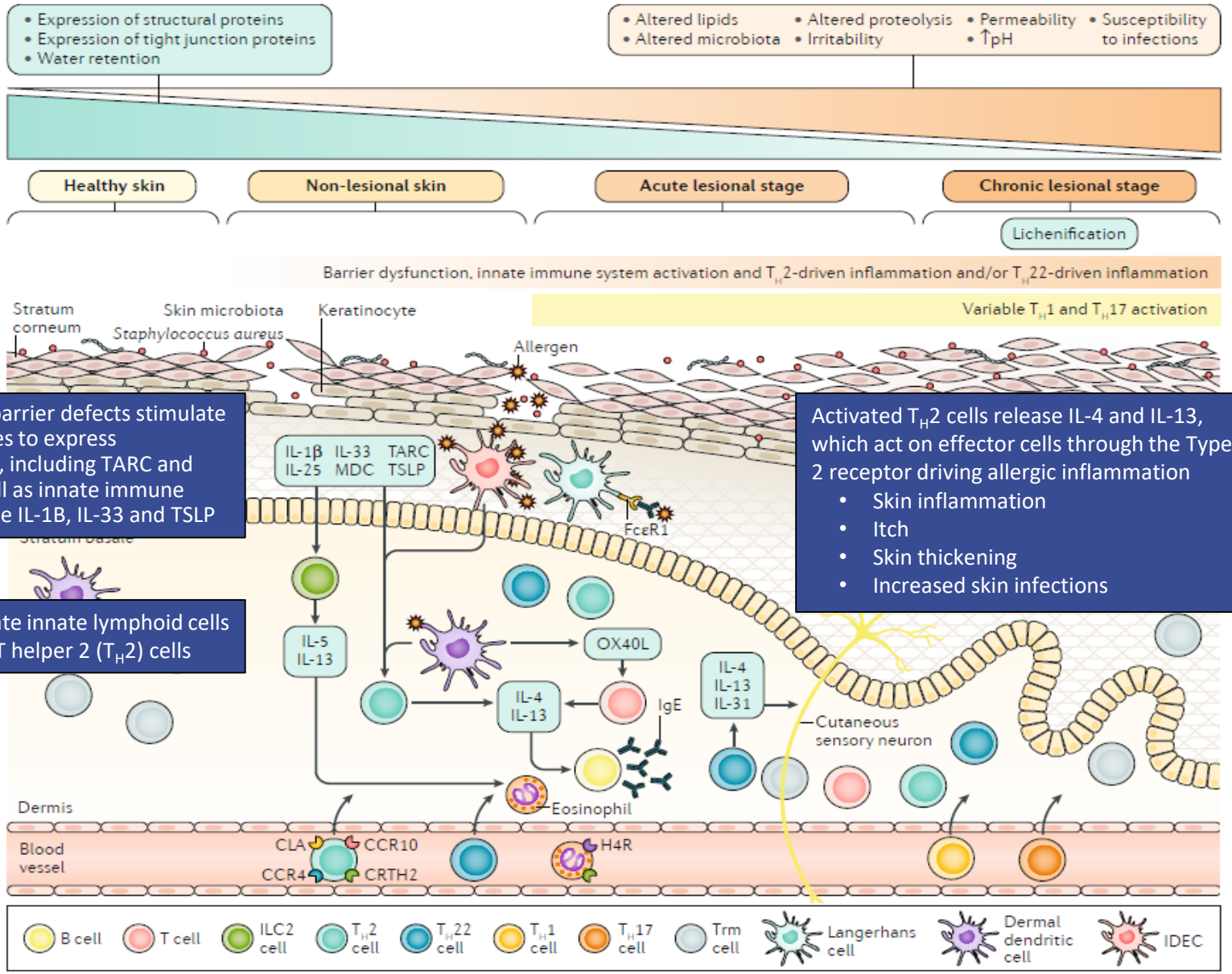
A drug that can deliver better efficacy over current standard of care

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

Role of the Type 2 receptor



In AD, skin barrier defects stimulate keratinocytes to express chemokines, including TARC and MDC, as well as innate immune cytokines like IL-1B, IL-33 and TSLP

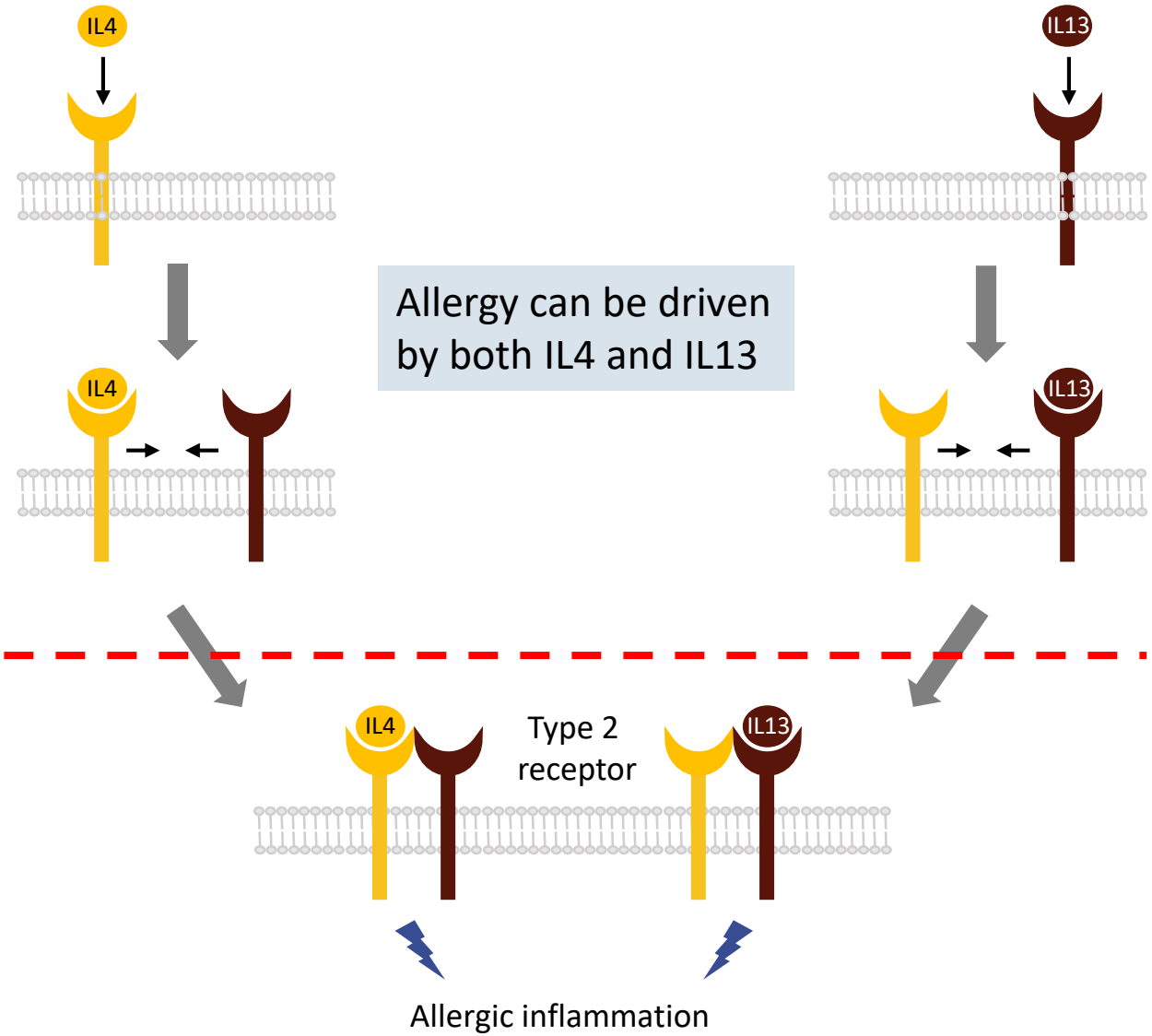
These activate innate lymphoid cells (ILC2s) and T helper 2 (T_H2) cells

Activated T_H2 cells release IL-4 and IL-13, which act on effector cells through the Type 2 receptor driving allergic inflammation

- Skin inflammation
- Itch
- Skin thickening
- Increased skin infections

Source: Weidinger, S. et al. 2018. *Nature Reviews Disease Primers*

ASLAN004 is the only drug besides *dupilumab* to provide dual IL4 / IL13 blockade

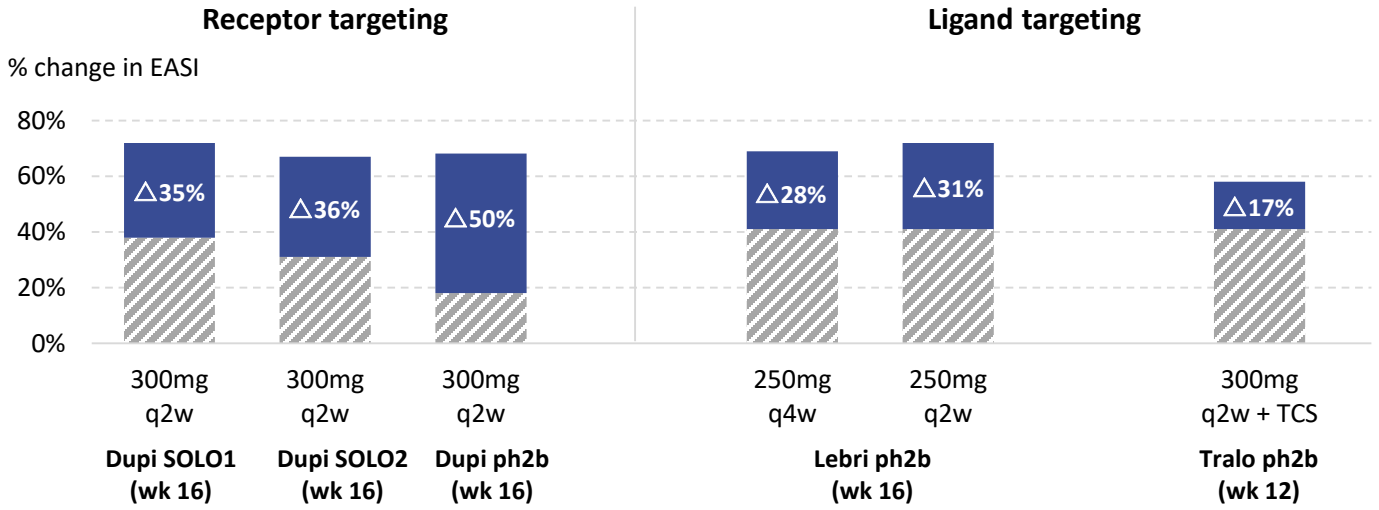


ASLAN004 blocks the formation of the Type 2 receptor, preventing signalling through both IL4 and IL13

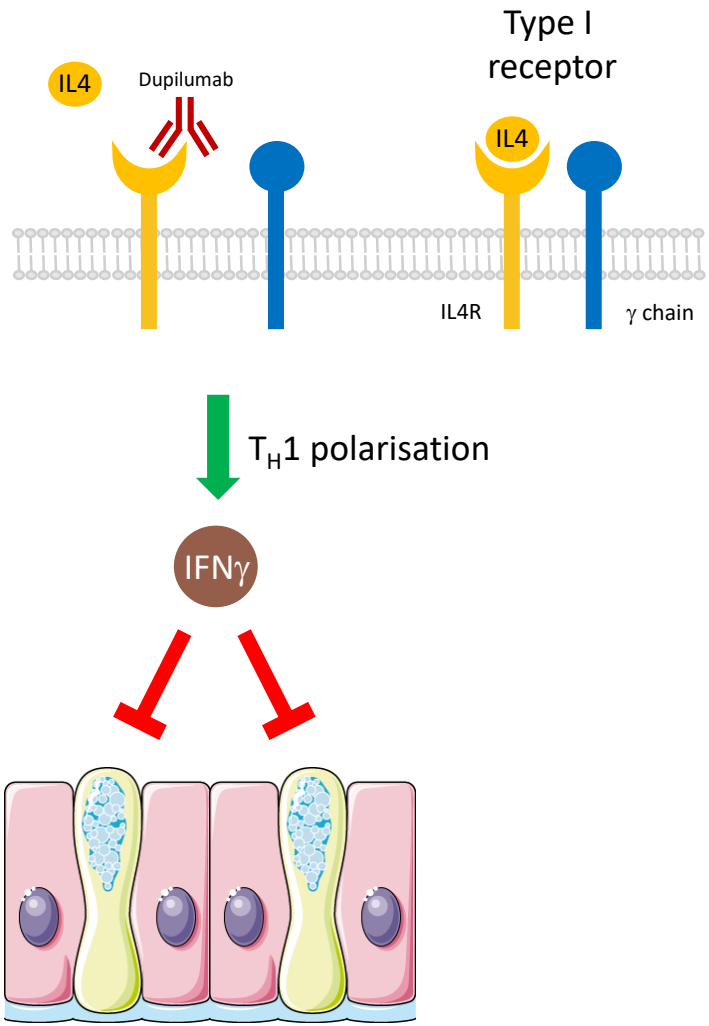
Dual-blockade (receptor targeting) appears clinically to be more effective

IL4/IL13 receptor targeting		
ASLAN004 (ASLAN)	IL13Rα1	Phase 1 / POC in atopic dermatitis
Dupilumab (Sanofi / Regeneron)	IL4Rα	Approved in atopic dermatitis and allergic asthma

IL4/IL13 ligand targeting		
Lebrikizumab (Eli Lilly / Dermira)	IL13	Discontinued in asthma, phase 3 in atopic dermatitis
Tralokinumab (Leo)	IL13	Discontinued in asthma, phase 3 in atopic dermatitis
Altrakincept (Amgen)	IL4	Discontinued
Pascolizumab (GSK)	IL4	Discontinued



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

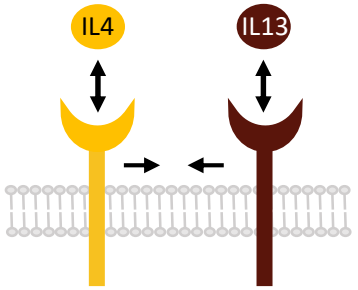


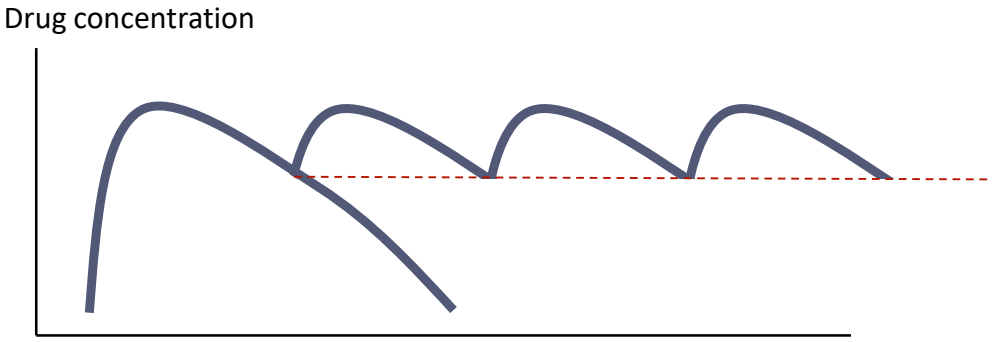
- *Dupilumab* blocks the Type I receptor
- This may drive T_H2 to T_H1 polarisation
- T_H1 cells product interferon gamma, which can lead to apoptosis of goblet cells
- This could lower the production of mucin and lead to development of dry eye and conjunctivitis

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	





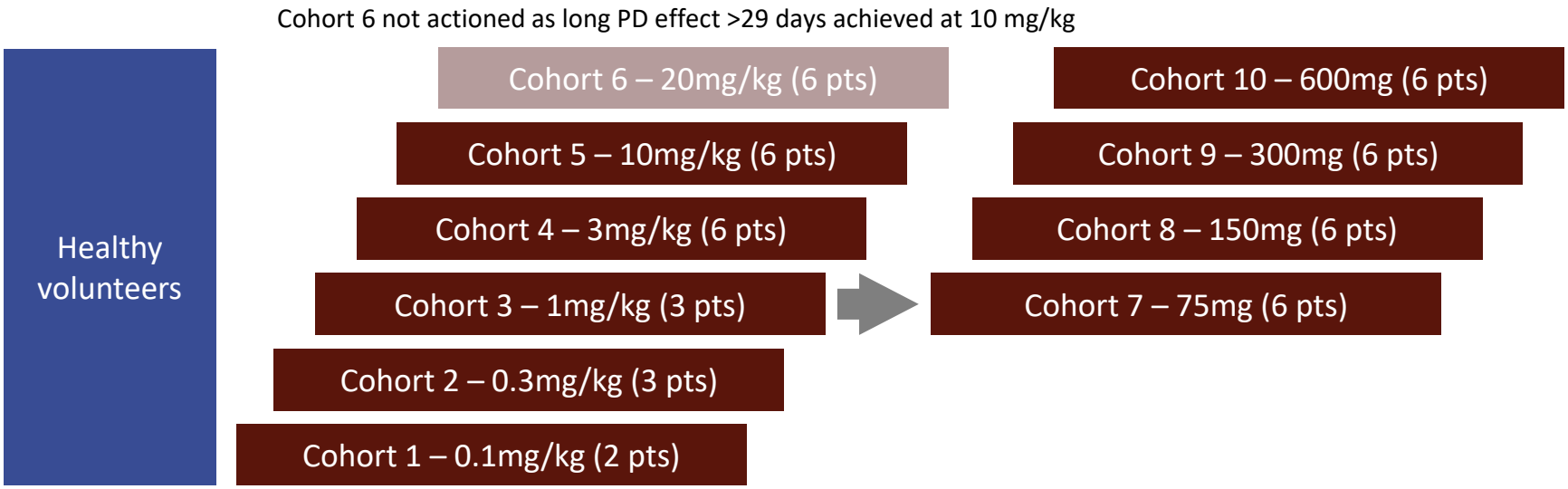
Need to repeat dose to avoid concentration falling

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

Phase 1 SAD study in healthy volunteers completed

- Well tolerated at all doses when administered IV and subcutaneous (SC)
  - No adverse events that led to discontinuations, no significant injection site reactions
  - SC now used in on-going studies
- Analysis of downstream mediators including pSTAT6 demonstrated complete inhibition within one hour of dosing with IV and maintained for more than 29 days
- PK profile may allow for monthly dosing
- Concentration required to completely inhibit signal transduction via the receptor was over an order of magnitude lower than that of existing therapies

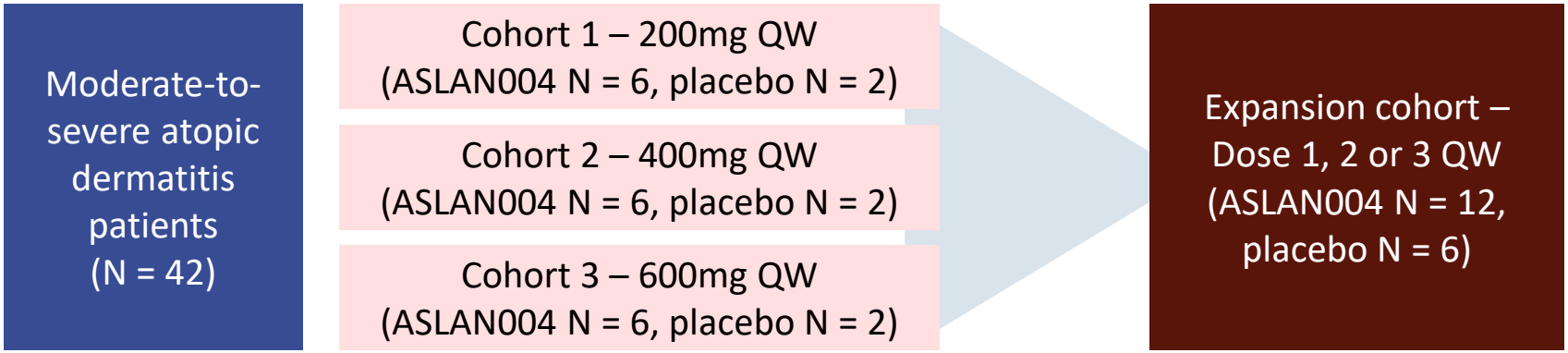


ASLAN004 well-tolerated at all dose levels

Drug-related adverse event	N = 44				
	Any grade		Severity		
	N	(%)	Mild	Moderate	Severe
Decreased appetite	2	5	1	1	0
Alanine aminotransferase increased	1	2	1	0	0
Diarrhoea	1	2	1	0	0
Pyrexia	1	2	1	0	0
Blood lactate dehydrogenase increase	1	2	1	0	0
Weight decrease	1	2	1	0	0
Lymphocyte count decrease	1	2	1	0	0
Headache	1	2	0	1	0
C-reactive protein increase	1	2	1	0	0
Injection site pruritus (mild)	1	2	1	0	0

ASLAN004 MAD is designed to deliver PoC

- MAD / PoC study testing ASLAN004 in moderate-severe AD patients
- Double-blind, placebo-controlled study
- Patients dosed for 8 weeks with a 12-week recovery period
- Cohort 3 opened in October, recruiting from US, Australia, Singapore
- Interim unblinded data from cohorts 1-3 expected early 2021, with completion in 1H 21



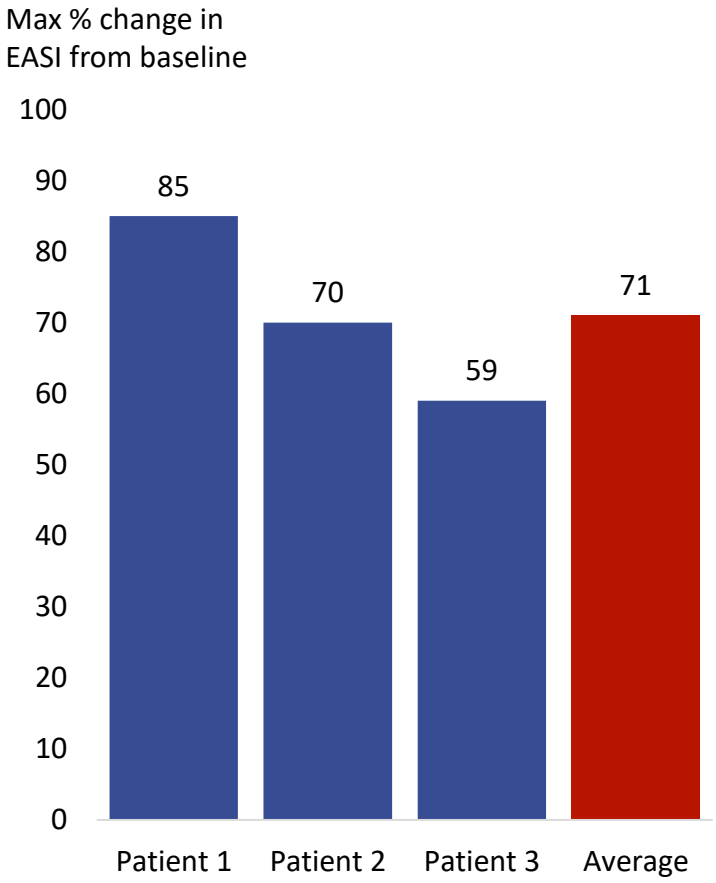
Primary endpoints are safety and tolerability

Secondary endpoints include percentage change in EASI score (EASI50, EASI75) pruritus score and IGA, TARC, IgE

Study has 80% power to detect a 39% improvement in the percentage change in EASI score from baseline based on a one-sided 5% significance level

Early signs of efficacy in low dose cohort

- First patient enrolled on 22 October 2019
- As of 29 November 2019, 6 patients treated in low dose (200mg) cohort
- ASLAN004 well-tolerated, with no serious AEs or treatment discontinuation
- 3 patients completed at least 1 month of dosing with average reduction in EASI of 71%
- Maximal efficacy expected at 6 to 8 weeks

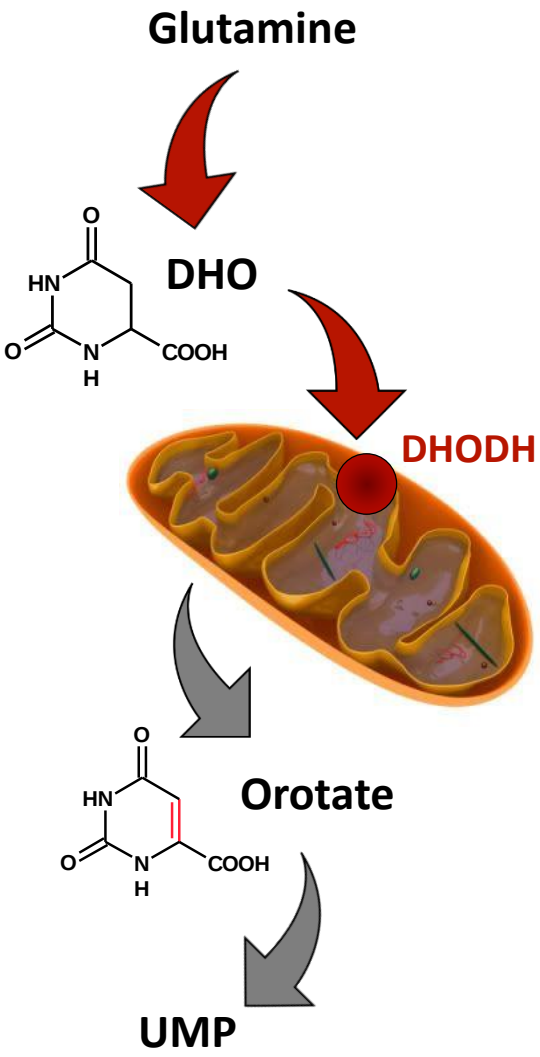


ASLAN004 has the potential to be best-in-disease

IL-13Rα1 inhibitor	ASLAN004 is the only monoclonal antibody targeting IL-13Rα1, and has the potential to be best-in-disease for atopic dermatitis and asthma
Validated pathway	Targets the same pathway and receptor complex (Type II) as *dupilumab*
Targeting differentiated profile	Potential for improved efficacy, fewer adverse events, monthly dosing
SAD completed	Phase 1 SAD in healthy volunteers completed. No significant adverse events noted to date. Profile may allow for monthly dosing.
MAD/PoC ongoing	Currently recruiting third cohort in MAD / PoC study. Early efficacy data encouraging. Completion in 1H 21
Phase 2b program	Planning to initiate phase 2b program in 2021
Potential in other indications	Potential to pursue development in other indications where *dupilumab* has proven to be effective

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 as a treatment for autoimmune diseases

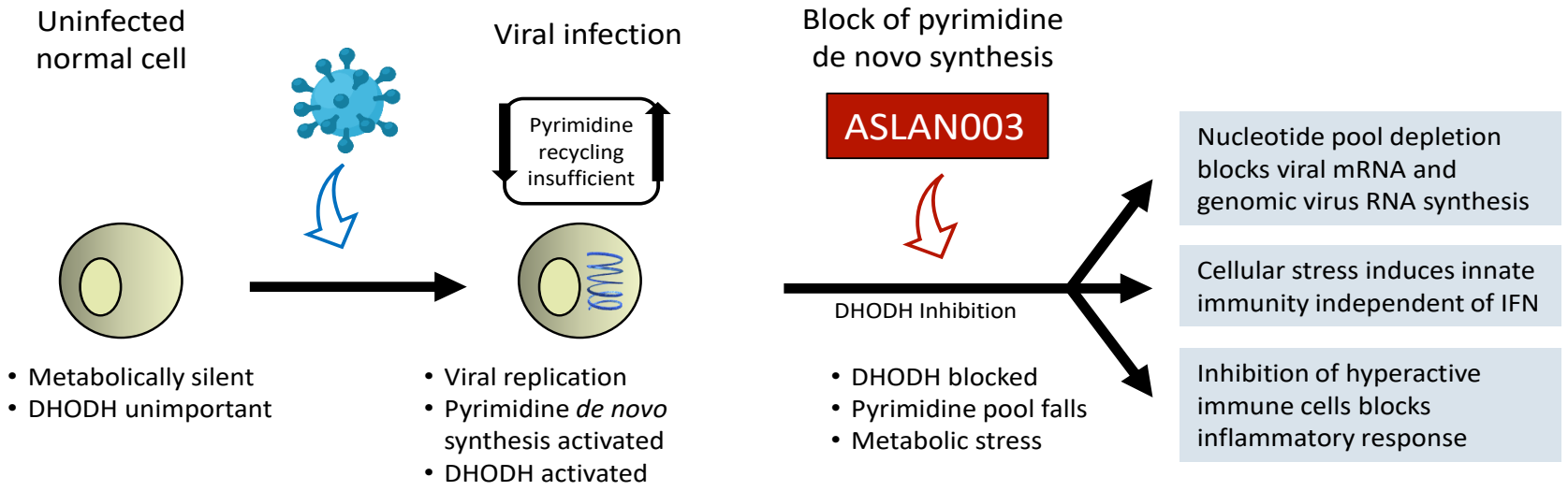
- DHODH an effective target in MS and RA treatment (Aubagio, Arava)
  - Aubagio $2.2B global sales in 2019, part of a $23B global MS market[1]
- ASLAN003 was designed to be more potent and to address the toxicities associated with first generation inhibitors (*leflunomide*, *teriflunomide*)
  - Superior *in vitro* potency as compared with other DHODH inhibitors
  - Selective against a panel of 195 enzymes, ion channels and receptor binding assays
- Active in the multiple sclerosis EAE model and rheumatoid arthritis AIA model
- 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

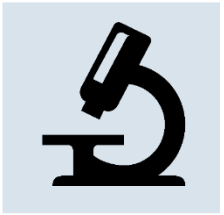
ASLAN003 is also a potent anti-viral agent

- DHODH is a compelling anti-viral target
  - Inhibition of viral replication
  - Inhibition of inflammatory response
  - DHODH as a host-cell target provides a higher barrier to resistance
- ASLAN003 is active against SARS-CoV-2 (EC_{50} = 1.4nM)
- Also active against Zika, Dengue, Chikungunya



ASLAN003

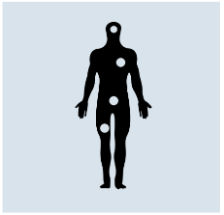
Potential to be best in class for autoimmune disease



Best-in-class potency and selectivity profile as compared to other oral DHODH inhibitors in autoimmune disease

Active in animal models of MS and other autoimmune diseases

Highly favourable PK profile suitable for once-daily oral dosing



Well tolerated in 119 subjects in phase 1 and phase 2 clinical studies

Potential utility in oncology and infectious disease

Financials

Financials

Ticker	NASDAQ: ASLN
Shares outstanding[1]	38.0M
Net operating cash used	US$ 2.6M
Cash balance	US$ 12.1M
Recent financing	US$ 14.7M raised in Dec 2019

(As of end Q3 2020)

1 American Depositary Shares (or equivalent)