PRESS RELEASE

ASLAN PHARMACEUTICALS PRESENTS NEW DATA ON EBLASAKIMAB AND FARUDODSTAT IN TWO LATE-BREAKING PRESENTATIONS AT THE 1ST INTERNATIONAL SOCIETIES FOR INVESTIGATIVE DERMATOLOGY MEETING

- **First study comparing blockade of the IL-4 receptor and IL-13 receptor, both components of the Type 2 receptor complex, presented in an oral late-breaking mini-symposium, revealed that IL-13Rα1 blockade with *eblasakimab* may lead to more potent control of the Th2 inflammatory response and dampening of Th1 proinflammatory cytokines *in vitro* compared to blockade of IL-4Rα in patients with moderate-to-severe atopic dermatitis**
- **Second late-breaker poster presentation highlighted the role of *farudodstat*, a DHODH inhibitor, in reducing T cell proliferation and potentially preventing loss of immune privilege in an *ex vivo* translational model of alopecia areata**

San Mateo, California, and Singapore, May 15, 2023 – ASLAN Pharmaceuticals (NASDAQ: ASLN), a clinical-stage, immunology-focused biopharmaceutical company developing innovative treatments to transform the lives of patients, today announced the presentation of new *eblasakimab* and *farudodstat* data in late-breaker oral and poster presentations respectively, at the 1st International Societies for Investigative Dermatology (ISID) meeting, which took place from May 10 to 13, 2023, in Tokyo, Japan.

“This late-breaking data offers new and important insights into the novel mechanisms of *eblasakimab* and *farudodstat* for atopic dermatitis (AD) and alopecia areata (AA) respectively." said **Dr Ferda Cevikbas, Head of Translational Science at ASLAN Pharmaceuticals**. “Data from our collaboration with Dr Shawn Kwatra and Dr Madan Kwatra represent the first evidence of differential downstream effects of blocking the IL-13Rα1 versus the IL-4Rα - two approaches to targeting the Type 2 receptor.”

“Selective targeting of the Type 2 receptor by *eblasakimab*, an antibody targeting the IL-13Rα1, appeared to potently reduce Th2 inflammation while also preventing concomitant Th1 cytokine upregulation,” said **Dr Shawn Kwatra, Associate Professor of Dermatology at the Johns Hopkins University School of Medicine**. “These data suggest that targeting different subunits of the Type 2 receptor can result in distinct downstream effects and could lead to differential clinical outcomes.”

“By sparing the Type 1 receptor and preventing possible unwanted adverse effects of the Th1 immune response, *eblasakimab*’s selective targeting of the Type 2 receptor offers a promising therapeutic approach in treating AD, compared to targeting the IL-4Rα. We look forward to learning more about the clinical benefits of *eblasakimab*’s differentiated approach when we announce topline data from our Phase 2 TREK-AD study in early July,” **Dr Cevikbas continued**. “Furthermore, data from an *ex vivo* human AA disease model demonstrates the potential for *farudodstat* to protect against immune privilege collapse in AA. We are grateful to all our experts and research organizations who partnered with us for these studies.”

2023 ISID late-breaker poster details:

Eblasakimab

Oral presentation in mini symposium on May 13 and ePoster presentation

Downstream effects of IL-13α1 blockade on Type 2 inflammation and Th1 immune axis activation in atopic dermatitis (abstract ID: LB1751)

Current evidence indicates that the pathogenesis of AD involves two critical cytokines, IL-4 and IL-13, which mediate type 2 helper T cell (Th2)-driven inflammation through the Type 1 receptor (composed of IL-4Rα and the common gamma chain) and Type 2 receptor (composed of IL-4Rα and IL-13Rα1)[1]. The contributions of Type 1 and Type 2 signalling in driving Th2 inflammation are currently unknown and hence we have yet to understand the most effective way to inhibit Th2 inflammation in patients with AD. This study evaluates the effect of blocking either 1) both Type 1 and Type 2 receptors signalling, using anti-IL-4Rα antibody, or 2) only Type 2 receptor signalling using *eblasakimab*, a monoclonal antibody that binds IL-13Rα1.

The protocol used isolated peripheral blood mononuclear cells (PBMCs) from patients with moderate-to-severe AD to examine the downstream effect of anti-IL-4Rα antibody or *eblasakimab* on Th2-inflammatory and Th1-immune related cytokines.

IL-13Rα1 blockade with *eblasakimab* was associated with statistically significant lower levels of Th2-key cytokines including TARC, IL-13, IL-4 and MCP-4 compared to blockade of IL-4Rα. Furthermore, the activation of Th1 cytokines, including TNF-α, IL-2, GM-CSF, IL-12 and IP-10, was significantly increased with anti-IL-4Rα treatment as compared to *eblasakimab* treatment. Collectively, the data indicates that selective targeting of the IL-13Rα1 with *eblasakimab* may lead to a more potent control of Th2 inflammatory response while dampening Th1 activation compared to targeting IL-4Rα.

Farudodstat

A novel ex vivo model of human hair follicle immune privilege collapse reveals the potential of farudodstat, a DHODH inhibitor, as a therapeutic for alopecia areata treatment
(abstract ID: LB1777)

Alopecia areata (AA) is an autoimmune disease characterized by inflammation in hair follicles (HF), loss of immune privilege (IP) and a Th1 mediated-inflammatory response leading to hair loss[2]. Dihydroorotate dehydrogenase (DHODH) plays a key role in T-cell proliferation and its inhibition decreases Th1-cell differentiation and IFNγ production[3,4], but its role in AA pathophysiology is yet to be fully understood. This study investigated whether *farudodstat*, a DHODH inhibitor, has potential in the treatment of AA using an innovative *ex vivo* model for AA.

Our novel *ex vivo* model used microdissected HFs from healthy human donors stimulated with anti-CD3/CD28 antibodies to promote intra- and peri-follicular T-cell activation.

When anti-CD3/CD28 was applied to healthy HFs there was 1) an increase in $CD3^+$ and $CD3^+$ $Ki\text{-}67^+$ in the epithelium and mesenchyme, indicative of T cell activation and proliferation 2) increased expression of key markers MHC I and II proteins which revealed loss of IP. Subsequent treatment with *farudodstat* significantly reduced the proliferation of T-cells, decreased MHC expression and the number of $MHC\text{-}II^+$ cells in the hair bulb, suggesting potential protection from IP loss. *Farudodstat* alone did not affect hair matrix keratinocyte proliferation or IP markers, suggesting no signs of cytotoxicity were observed in healthy HFs. Together, the findings highlight the potential for *farudodstat* as a novel therapy for AA.

The posters presented at the conference are available in the Publications section of ASLAN's website.

References

1 Junttila IS (2018) Front Immunol 9:888
2 Bertolini et al (2020) Exp Dermatol 29:1-23
3 Steinert et al (2021) Annu Rev Immunol 39:395-416

4 Klotz et al (2019) Sci Transl Med 1:11(490)

About *eblasakimab*

Eblasakimab is a potential first-in-class monoclonal antibody targeting the IL-13 receptor subunit of the Type 2 receptor, a key pathway driving several allergic inflammatory diseases. *Eblasakimab*'s unique mechanism of action enables specific blockade of the Type 2 receptor and has the potential to improve upon current biologics used to treat allergic disease. By blocking the Type 2 receptor, *eblasakimab* prevents signaling through both interleukin 4 (IL-4) and interleukin 13 (IL-13) – the key drivers of inflammation in atopic dermatitis (AD). Positive results from a Phase 1b multiple-ascending-dose study established proof-of-concept *for eblasakimab* and supported its potential as a novel, differentiated treatment for AD. ASLAN is currently conducting TREK-AD, a Phase 2b trial to evaluate *eblasakimab* in biologic naïve moderate-to-severe AD patients, with topline readout expected in early July 2023. ASLAN is also investigating *eblasakimab* in *dupilumab* experienced, moderate-to-severe AD patients in the Phase 2 trial TREK-DX, with data expected in the first quarter of 2024.

About *farudodstat*

Farudodstat is a potent, oral DHODH inhibitor that suppresses immune cell proliferation and IFN-γ secretion by blocking *de novo* production of pyrimidines required for DNA replication. Compared to first-generation DHODH inhibitors, *farudodstat* has been shown to be approximately 30 times more potent in its inhibition of DHODH and limiting T cell activity and has demonstrated a well-tolerated safety profile. ASLAN has generated data showing that *farudodstat* can protect against the loss of immune privilege in hair follicles, supporting its potential as a first-in-class treatment option for alopecia areata (AA).

About ASLAN Pharmaceuticals

ASLAN Pharmaceuticals (Nasdaq: ASLN) is a clinical-stage, immunology-focused biopharmaceutical company developing innovative treatments to transform the lives of patients. ASLAN is developing *eblasakimab*, a potential first-in-class antibody targeting the IL-13 receptor in moderate-to-severe atopic dermatitis (AD) with the potential to improve upon current biologics used to treat allergic disease. *Eblasakimab* is being investigated in a global Phase 2b trial of moderate-to-severe AD patients with topline readout expected in early July 2023. ASLAN is also developing *farudodstat*, a potent oral inhibitor of the enzyme DHODH, as a potential first-in-class treatment for alopecia areata (AA) and plans to initiate a proof-of-concept trial in 2Q 2023. ASLAN has teams in San Mateo, California, and in Singapore. For additional information please visit the website or follow ASLAN on LinkedIn.

Forward-looking statements

This release contains forward-looking statements. These statements are based on the current beliefs and expectations of the management of ASLAN Pharmaceuticals Limited and/or its affiliates (the "Company"). These forward-looking statements may include, but are not limited to statements regarding the Company's business strategy and clinical development plans; the Company's plans to develop and commercialize *eblasakimab* and *farudodstat*; the safety and efficacy of *eblasakimab* and *farudodstat*; the Company's plans and expected timing with respect to clinical trials, clinical trial enrolment and clinical trial results for *eblasakimab* and *farudodstat*; the potential of *eblasakimab* as a first-in-class treatment for atopic dermatitis and of *farudodstat* as a first-in-class treatment for alopecia areata; and the Company's cash runway. The Company's estimates, projections and other forward-looking statements are based on management's current assumptions and expectations of future events and trends, which affect or may affect the Company's business, strategy, operations, or financial performance, and inherently involve significant known and unknown risks and uncertainties. Actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of many risks and uncertainties, which include, unexpected safety or efficacy data observed during preclinical or clinical studies; clinical site activation rates or clinical trial enrolment rates that are lower than expected; the impact of the COVID-19 pandemic or the ongoing conflict between Ukraine and Russia and bank failures on the Company's business and the global economy; general market conditions; changes in the competitive landscape; and the Company's ability to obtain sufficient financing to fund its strategic and clinical development plans. Other factors that may cause actual

results to differ from those expressed or implied in such forward-looking statements are described in the Company's US Securities and Exchange Commission filings and reports (Commission File No. 001- 38475), including the Company's Annual Report on Form 20-F filed with the US Securities and Exchange Commission on March 24, 2023. 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.

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