**IMG-007, a nondepletingOX40 monoclonal antibody, improves the extent and severity of skin lesions in adults with moderate-to-severe atopic dermatitis: interim results from a phase 2a proof-of-concept trial**

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**Introduction**

- **OX40** is a costimulatory receptor primarily expressed by activated T cells and plays an important role in amplifying immunopathogenic responses in atopic dermatitis (AD).
- **IMG-007** is a novel non-depleting anti-OX40 monoclonal antibody (mAb) bioengineered with a Fc N297A mutation to abolish the antibody-dependent cellular cytotoxicity (ADCC) function.
- In nonclinical studies, IMG-007 potently blocked the signaling between OX40 and OX40L and was devoid of ADCC.
- In a Phase 1 single-dose study in healthy adults, IMG-007 was well-tolerated, without any reports of pyrexia or chills. It also exhibited an extended half-life of 31 days at anticipated therapeutic doses, which would potentially enable less frequent dosing, such as once every 12 weeks (Q12W).

**Methods**

**Study Design**

- Phase 2a, open-label, single arm, multicenter study (NCT05984784).
- Eligible patients were to receive three intravenous infusions of IMG-007 (NCT05984784).
- In nonclinical studies, IMG-007 was safe and well tolerated without any reports of pyrexia or chills. It also exhibited an extended half-life of 31 days at anticipated therapeutic doses, which would potentially enable less frequent dosing, such as once every 12 weeks (Q12W).

**Results**

**Patient disposition and baseline characteristics**

- A total of 13 patients were enrolled from 6 centers in the U.S. and Canada.
- All patients meeting the inclusion criteria were enrolled and treated with IMG-007, with 12 patients completing the entire study.
- Mean disease duration was 29.6 years and 8 (61.5%) patients had IGA score of 3 at baseline. Mean baseline EASI score was 29.5, affected BSA was 52.0, SCORAD score was 71.7. Three (23.1%) patients received prior biologics or Janus kinase inhibitors.

**Efficacy results**

- After treatment with IMG-007 for only 4 weeks, there was a rapid improvement in the extent (per BSA, Figure 1) and severity (per EASI, Figure 2) of skin lesions with continued improvement sustained through Week 20 (4 months after the last dose of study treatment at Week 4). A similar trend of improvement was also observed in SCORAD.

Figure 1 Percent reduction in BSA from baseline to Week 20

![Figure 1](image1)

**Figure 2** Percent reduction in EASI from baseline to Week 20

![Figure 2](image2)

**Figure 3** Percent reduction in O-SCORAD from baseline to Week 20

![Figure 3](image3)

**Safety Results**

- All TEAEs were mild or moderate, except for one patient with erythrodermic AD who experienced a severe AE of AD flare.
- No TEAEs were judged to be study treatment related by the investigator.
- There were no serious adverse events (SAEs), and no pyrexia or chills.
- IMG-007 was well tolerated in AD patients.

Table 1 Overall summary of TEAEs

<table>
<thead>
<tr>
<th>TEAE by CTCAE grade</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1 (Mild)</td>
<td>9 (69.2)</td>
</tr>
<tr>
<td>Grade 2 (Moderate)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Grade 3 (Severe)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>TEAE that are infusion related reaction</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>TEAE leading to 4-week dosing period discontinuation</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

**Conclusion**

- **IMG-007** was safe and well tolerated without any reports of pyrexia or chills in patients with moderate-to-severe AD. The favorable safety profile is consistent with a silenced ADCC function.
- Treatment with IMG-007 for a short duration of 4 weeks resulted in a rapid and sustained improvement in the extent and severity of AD, suggesting that blocking OX40 without depleting T cells is efficacious. IMG-007 has the potential to achieve an improved benefit/risk profile in the long-term disease management in AD patients.
- With the ability to inhibit the OX40 receptor without depleting T cells and a long half-life, IMG-007 has the potential to not only minimize safety risks associated with T cell depletion, but also provide patients with a more convenient dosing regimen, such as Q12W.

**Disclosures:**

1. Jonathan I. Silverberg is an advisor for Inmagene Biopharmaceuticals, the study sponsor.
2. Aswin Nair is a consultant for Inmagene Biopharmaceuticals.
3. Yancong Shen, Zi Lin, Chongtian Guo, Yufang Lu are employees of Inmagene Biopharmaceuticals, may hold stock/options in the company.

**Endpoints**

- Key study endpoints were safety and efficacy, assessed by the incidence of treatment-emergent adverse events (TEAEs), EASI, IGA, BSA and SCORing atopic dermatitis (SCORAD) index.

**Baseline**

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