## Background

Patients with relapsed/refractory multiple myeloma (RRMM) and high-risk (HR) cytogenetics have a poor prognosis and historically receive limited therapies. In-cell vaccination antigen (ICVA) is a cell membrane receptor that is expressed on all malignant plasma cells and is essential for the proliferation and survival of myeloma cells. Janssen (now Janssen Biotech, a member of the Johnson & Johnson family of companies) is developing belamaf (INC424) for the treatment of RRMM and high-risk cytogenetic disease under a collaboration between Janssen and Indicia Therapeutics (Inc.).

Belamaf is a multimodal oncoembolization agent containing the fusion of IL-12/IL-24 cytokines that elicit a strong anti-tumor response and cytotoxic effects on myeloma. The study is being conducted across multiple institutions in the United States, Spain, and Canada. Clinical data are being analyzed based on disease status, more advanced ICVA expression, and clinical features.

## Methods

### Study Design

**Study Population**

Eligible patients had to be 18 years of age or older. The primary endpoint was ORR in patients who received belamaf treatment (Spectrum belamaf), as reported in an abstract from the 2019 ASH Annual Meeting. The secondary endpoint was ORR in patients receiving belamaf treatment (incorporating belamaf and belamaf alone).

### Study Endpoints

- **Primary Endpoint:** ORR in patients who received belamaf treatment
- **Secondary Endpoint:** ORR in patients receiving belamaf treatment

### Study Methods

- **Study Design:** Phase I/II clinical trial
- **Treatment:** Belamaf (INC424) delivered through a transarterial approach under a selective embolization technique
- **Dose:** 3.4 mg/kg (95% CI: 2.5 - 11)*

## Results

### Patient demographics and baseline characteristics

Patient demographics and baseline characteristics are reported in Table 1. Median numbers at prior lines of therapy were substantially homogeneous.

### Table 1. Patient demographics and baseline characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall</th>
<th>HR 2</th>
<th>HR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>62 (46)</td>
<td>61 (39)</td>
<td>62 (39)</td>
</tr>
<tr>
<td>Sex</td>
<td>57 (64)</td>
<td>50 (63)</td>
<td>57 (64)</td>
</tr>
<tr>
<td>Median number of prior lines of therapy</td>
<td>2 (5)</td>
<td>3 (7)</td>
<td>3 (7)</td>
</tr>
</tbody>
</table>

### Safety

The ORRs were comparable in both HR and SR patients; although there were some numerical differences, the patient characteristics and drug toxicities in both arms were generally consistent. The most frequently reported grade 3/4 adverse events (AEs) in the overall population were neutropenia, fatigue, anemia, and thrombocytopenia. The incidences of treatment-emergent grade 3/4 AEs were generally consistent with those reported in prior belamaf studies. The incidences of grade 3/4 AEs are shown in Table 2.

### Table 2. Incidence of grade 3/4 AEs in the overall population

<table>
<thead>
<tr>
<th>AE Category</th>
<th>Overall</th>
<th>HR 2</th>
<th>HR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematologic</td>
<td>90 (10)</td>
<td>95 (28)</td>
<td>85 (22)</td>
</tr>
<tr>
<td>Non-hematologic</td>
<td>47 (5)</td>
<td>47 (5)</td>
<td>47 (5)</td>
</tr>
<tr>
<td>Serious AEs</td>
<td>40 (4)</td>
<td>40 (4)</td>
<td>40 (4)</td>
</tr>
</tbody>
</table>

### Conclusion

Belamaf demonstrated deep and durable responses and an acceptable safety profile in patients with heavily pre-treated (median of 7 prior lines) RRMM. The results of a clinical trial are consistent with the above findings. Belamaf was well tolerated in the overall population. The incidences of grade 3/4 AEs were generally consistent with those reported in prior belamaf studies. The incidence of grade 3/4 AEs is shown in Table 2.

## Discussion

Belamaf is a novel immunotherapeutic agent that has the potential to produce durable responses in patients with RRMM and high-risk cytogenetics. The results of this study are consistent with the findings of prior belamaf studies and support further development of this agent in this patient population.