TransCon hGH as a Long-Acting Growth Hormone for the Treatment of Pediatric Growth Hormone Deficiency

**BACKGROUND**

The fundamental challenge of developing a competing growth hormone (GH) to achieve a once-weekly or daily dose regimen involves the essence of safety, efficacy, and the potential for adherence. For instance, with respect to pituitary growth hormone deficiency, the GH-releasing hormone (GHRH) and somatostatin-releasing hormone (SRIF) are used to control GH secretion without the need for exogenous GH. GH deficiency may be treated with GH administered daily. While daily GH has both an excellent safety profile and a high efficacy profile, there is a significant burden on patients and caregivers due to the frequent administration. Therefore, a Long-Acting GH (LAGH) with extended GH half-life could allow for less frequent dosing, thereby improving patient and caregiver adherence.

**METHODS**

TransCon hGH is a Long-Acting GH in development for pediatric pituitary growth hormone deficiency (GHD) with a slow release depot containing a GH-like molecule that is covalently conjugated to a polymer. TransCon hGH is a synthetic GH that is chemically distinct from endogenous GH, but is designed to bind to the GH receptor to release unmodified GH over a 7-day period.

**RESULTS**

Table 1: Summary of Long-Acting Growth Hormone Categories (Commercial & Development Programs)

<table>
<thead>
<tr>
<th>Approach</th>
<th>Company/Company Product/Formulation</th>
<th>Pediatric GHD Development Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Pharming</td>
<td>OPKO Health OPKOGH-003</td>
<td>Approved in 5 countries</td>
</tr>
<tr>
<td>PEGylation-Polymeric depot</td>
<td>Pfizer, Inc. MOD-4023</td>
<td>Approved in 3 countries</td>
</tr>
<tr>
<td>Protein Glycation</td>
<td>Pfizer, Inc. VRS-317</td>
<td>Approved in 2 countries</td>
</tr>
<tr>
<td>Covalent linker-soluble carrier</td>
<td>LG Life Sciences LS-200</td>
<td>Investigational</td>
</tr>
<tr>
<td>TransCon® transient conjugation</td>
<td>Ascendis Pharma, Inc. TransCon™ hGH</td>
<td>Investigational</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

- TransCon hGH as a Long-Acting Growth Hormone for the Treatment of Pediatric Growth Hormone Deficiency

**CLINICAL IMPLICATIONS**

- TransCon hGH is a Long-Acting GH in development for pediatric pituitary growth hormone deficiency (GHD) with a slow release depot containing a GH-like molecule that is covalently conjugated to a polymer. TransCon hGH is a synthetic GH that is chemically distinct from endogenous GH, but is designed to bind to the GH receptor to release unmodified GH over a 7-day period.

**Figure 1: TransCon™ hGH Phase 3 Program**

**Figure 2: Phase 3b Goal Trial Design**

**Figure 3: Schematic of Possible TransCon™ hGH Phase 3 Program**

**Figure 4: Safety Analysis**

- Long-term clinical trial involving adolescents with a follow-up of 10 years from the baseline data.
- TransCon hGH is a Long-Acting GH in development for pediatric pituitary growth hormone deficiency (GHD) with a slow release depot containing a GH-like molecule that is covalently conjugated to a polymer. TransCon hGH is a synthetic GH that is chemically distinct from endogenous GH, but is designed to bind to the GH receptor to release unmodified GH over a 7-day period.

**Figure 5: TransCon™ hGH Phase 3 Programs**

**Figure 6: TransCon™ hGH Phase 3 Programs**

**Figure 7: TransCon™ hGH Phase 3 Programs**

**Figure 8: TransCon™ hGH Phase 3 Programs**

**Figure 9: TransCon™ hGH Phase 3 Programs**