# IL-2 mutein (mRNA-6231)

*Last program update: August 5, 2020*

<table>
<thead>
<tr>
<th>Modality</th>
<th>ID #</th>
<th>Program Indication</th>
<th>Preclinical development</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3 and commercial</th>
<th>Moderna rights</th>
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</thead>
<tbody>
<tr>
<td>mRNA-1944</td>
<td>Antibody against Chikungunya virus</td>
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<td>Worldwide DARPA funded</td>
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<td>AZD7970</td>
<td>Relaxin</td>
<td>Heart failure</td>
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<td>50-50 U.S. profit sharing; AZ to pay royalties on ex-U.S. sales</td>
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<td>mRNA-6981</td>
<td>PD-L1</td>
<td>Autoimmune hepatitis</td>
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<tr>
<td>mRNA-6231</td>
<td>IL-2</td>
<td>Autoimmune disorders</td>
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<td>Worldwide</td>
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**mRNA-6231 announced in January 2020**
IL-2 (mRNA-6231) – long acting mutein

mRNA-encoded IL-2 modified for the expansion of regulatory T cells

- Modified IL-2 is longer acting and more selective for the high affinity IL-2 receptor which is expressed mainly by regulatory T cells
- First intended subcutaneous administration of the LNP successfully used in a clinical trial for our mRNA-encoded antibody, mRNA-1944
- Recombinant IL-2 based therapeutics are being clinically evaluated for a wide range of autoimmune conditions
IL-2 mutein (mRNA-6231)

Preclinical data – demonstrates preferential expansion of Treg in NHP

NHP were dosed subcutaneously with a single dose of mRNA-6231 and T cells in the peripheral blood were monitored on days 1, 3, 5, 8, and 14.

1. Percent either Treg or activated CD8 out of total CD4+ or CD8+ respectively
2. Treg defined as CD3+CD4+Foxp3+, increase represents an average over 4 animals, maximum is day 8 post-dosing
3. Activated CD8+ defined as CD3+CD8+ CD25+
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