

## CERTIFICATE OF ANALYSIS

ACE-031 Batch █████ September 2025

Product name	ACE-031 (Ramatercept)	Molecular formula	C <sub>133</sub> H <sub>227</sub> N <sub>43</sub> O <sub>33</sub>
Batch number	████	Molecular weight	2956.5 g/mol
CAS number	1621169-52-5	Quantity	1 mg
Date of manufacture	September 2025	PubChem CID	118732224
Storage	Powder: -20°C 3 years; 4°C 2 years; 15°C 3 months.	Storage	In solvent: -80°C 6 months; -20°C 1 month; 10°C 1 week

### Amino acid sequence

ActRIIB-Fc recombinant fusion protein  
8 residues

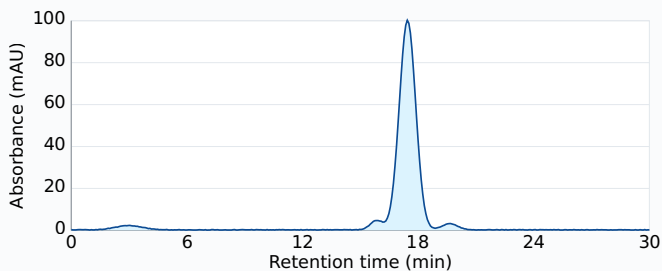
### Analytical results

Test parameter	Method	Specification	Result	Status
Appearance	Visual	White to off-white powder	Conforms	✓
Peptide purity	RP-HPLC (C18)	≥ 98.5%	98.57%	✓
Molecular weight confirmation	ESI-MS	2956.5 ± 1.0 Da	Conforms	✓
Water content	Karl Fischer	≤ 10.0%	5.7%	✓
Counter-ion content	HPLC	TFA ≤ 0.50% (acetate salt)	10.0% (acetate)	✓
Total related substances	RP-HPLC	≤ 2.0%	1.43%	✓
Largest single impurity	RP-HPLC	≤ 1.0%	0.65%	✓
Residual solvent — Acetonitrile	GC-HS	≤ 410 ppm	< 410 ppm	✓
Residual solvent — DCM	GC-HS	≤ 600 ppm	< 600 ppm	✓
Residual solvent — DMF	GC-HS	≤ 880 ppm	< 880 ppm	✓
Bacterial endotoxins	LAL kinetic turbidimetric	< 5 EU/mg	< 0.5 EU/mg	✓
Bioburden	USP <61>	< 100 CFU/g (USP <61>)	< 10 CFU/g	✓

### HPLC chromatogram

RP-HPLC C18

UV detection at 220 nm — gradient 10–70% ACN in 0.1% TFA over 30 min — flow 1.0 mL/min

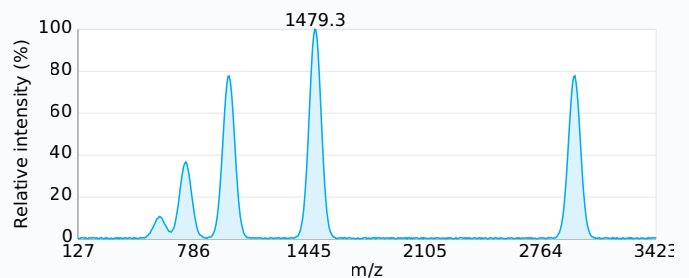


Main peak RT 17.45 min · Area 98.57% · Largest imp 0.65% · Total related 1.43%

### Mass spectrum

ESI-MS positive

Electrospray ionisation — positive mode



Observed [M+2H]<sup>2+</sup> 1479.3 · MW 2956.5 g/mol

✓ Overall result: Conforms to specification

Results relate only to the batch tested, by the stated methods at time of release, and are provided in good faith without warranty — OP Labs does not guarantee the accuracy or completeness of the results. Storage figures are recommendations, not stability data. Research use only.