CDMO for PolyAmino Acids

A One Stop Shop

Amino acid  NCA  PAA

The GMP Drug Delivery offer of PMC Isochem

Promizing Functional Excipients & Drug Conjugates
PMC Isochem: a unique integrated solution

- Highly talented & multidisciplinary R&D team with Academic connections.
- Fully equipped infrastructures and network to access cutting-edge technologies.
- Custom PAA supported by integrated NCA supply and development.

PAA Development & CMC

- PAA as Starting materials, Excipients or APIs.
- Integrated high quality and unique NCA catalogue.
- Process development.
- Analytical development.
- Full QA/Regulatory support for clinical stage.
- CMC Dossier.

Precinical and clinical batches

- 40 years experience in large scale GMP.
- Production of NCA and Custom of Manufacturing of PAA.
- PAA from Kilolab to full scale production.
- US & EU audited manufacturing facilities
- Regulatory experience (DMF, CMC file, …).
- 3 production Sites (France).

Business

- Lean approach to provide a faster, cheaper and better solution to allow you to save time, costs and to limit risks.
- Flexible and creative Business development team.

Market

- Commercial batches of Starting Materials, Excipients and APIs.
- QA and regulatory affairs to cover Product/Project lifecycle management.

Amino acid → NCA → PAA

Number One in manufacture of NCA
25 years / 60 monomers

NCA: α-aminoacid N-CarboxyAnhydride
PAA: Poly-AminoAcid

PMC Isochem
FDA Audited manufacturing plants
Why a PAA based delivery technology?

Growing interest for advanced biomedicines

Polyamino acids (PAs)-based materials have gained much attention in the field of biomedicine as they demonstrate remarkable biocompatibility and biodegradability due to the nature of the building amino acid monomers.

Production of polypeptides via ring opening polymerization of amino acid N-Carboxyhydride monomers yields narrow polydispersity, minimal side product formation, high reproducibility, versatile architectures and precise functionalization of the polypeptide backbone.

Engineering polypeptide architectures in order to mimic nature and cross biological barriers in a given pathology for drug delivery is nowadays being exploited in different preclinical studies and clinical trials.


Non-limiting examples of PAA - Various architectures

<table>
<thead>
<tr>
<th>HOMOPOLYPEPTIDES</th>
<th>HYDROPHILIC COPOLYMERS + AMPHIPHILIC COPOLYMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly-L-glutamate sodium salt</td>
<td>Methoxy-poly(ethylene glycol)-block-poly-L-peptide</td>
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<tr>
<td>Poly-L-ornithine hydrochloride</td>
<td>Poly-Sarcosine-block-poly-L-peptide</td>
</tr>
<tr>
<td>Poly-L-arginine hydrochloride</td>
<td>Poly-L-glutamate-block-poly-L-peptide</td>
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<tr>
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</tr>
<tr>
<td></td>
<td>Methoxy-poly(ethylene glycol)-block-poly(L-glutamic acid sodium salt)</td>
</tr>
</tbody>
</table>

Controled Mw and distribution C, N terminus and side chain functionality

Amphiphilic → self-assembly into micelles, polymersomes etc.

Amino acid based biopolymer diversity for innovative therapies
Your partner for Smart Delivery Technologies

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