



## Genaxxon BioScience Synthetic Peptides

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### General overview

The use of Fmoc chemistry on multiple reaction vessel synthesizers allows us to take full advantage of peptide cleavage and deprotection. Therefore, we can offer a rapid delivery of peptides synthesized using mixed anhydride or active ester coupling chemistries.

A Quality Control is performed on each synthesized peptide by RP-HPLC and MALDI-TOF Mass Spectrometry. Both, the HPLC chromatogram as well as the MS-Spectrum are supplied with the sample. To reach different purity levels, peptides are routinely purified by repetitive preparative RP-HPLC, although other strategies are also available. Contact us for more information.

### Purity levels

Genaxxon offers you a different purity levels from >55% up to >95% to help you make the right choice for your purpose. The

#### Immunograde purity (> 55% up to 70%)

For immunological and related purposes

Minimum amounts: 2 mg to 50 mg  
Length: 6-25 amino acids

Please inquire for longer peptides or higher amounts

Even if a purity level of > 70% is better for generating antibodies, a purity level of >55% up to 70% is usually sufficient for this purpose. Immunograde peptides are purified by precipitation and not purified by HPLC methods. To make sure that peptides of this purity work, a higher amount is used for coupling or direct immunisation.

The presence of organic impurities inherent to the synthesis process can be the source of adverse side effects like inflammatory or even toxic effects during the antibody production procedure.

#### Peptides of purity > 70% and 80% - 90%

For immunological and related purposes. For enzymology, biological activity studies, ELISA pretesting and for other purposes.

Minimum amounts: 2 to 50 mg  
Length: 6-25 amino acids  
HPLC chromatogram and Mass Spectrum will be delivered.

Please inquire for longer peptides or higher amounts.

> 70% pure peptides are usually better for generating or testing antibodies and also a smaller amount can be used for immunisation purposes. The HPLC-chromatography step will reduce organic impurities to a minimum that is sufficient for immunisation purposes with only little probability of side effects. Therefore, we recommend to use peptides of > 70% purity for immunisation purposes.

Peptides that are > 85% or > 95% pure are usually required in enzymology or biological activity studies. The quality of these peptides is checked by HPLC using a photodiode array detector and by Mass Spectrometry. These data are included in the peptide delivery.



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### Highly purified peptides (> 95% pure)

For enzymology and biological activity studies

Minimum quantity: 2 mg up to 20 mg

Length: 6 to 25 amino acids

Included in price: HPLC analysis and Mass Spectrometry analysis

Peptides that are > 95% pure are usually required in enzymology or biological activity studies. These peptides can also be used as standards in Chromatography. The quality of these peptides is checked by HPLC using a photodiode array detector and by Mass Spectrometry.

These data are included in the peptide delivery.

Please inquire for longer peptides or higher amounts.

### Available modifications

N-Acetylation, C-Amidation, Biotinylation, Phosphorylation, Sulfurylation, fluorescent modifications (FITC, rhodamine, etc.) and others.

Prolongation by spacer molecules (e.g. Ahx, or  $\beta$ -Ala), implementation of special groups for Jod125 labelling or implementation of linkers for the selective coupling of peptides to carrier proteins.

If you can't find the modification you want, just contact us at [info@genaxxon.com](mailto:info@genaxxon.com).

### Special peptides

#### Peptides containing non-natural amino acids

Provided the non-natural amino acids (e.g. D-amino acids,  $\beta$ -amino acids etc.) are commercially available, they can be introduced into a peptide sequence. - **Implementation of rare AS** into synthetic peptide, e.g. D-amino acids, N-methyl amino acids, Hydroxyprolin, phosphorylated amino acids (Tyr, Thr, Ser).

#### Modified peptides

Both side chain modifications and N- or C-terminal modifications are routinely achieved either during or after synthesis. These modifications specifically include the synthesis of biotinylated, phosphorylated, protected and cyclic peptides (such as Cys-Cys disulfide bridges etc.) as well as branched peptides.

#### Cyclic peptides

Recently, a growing interest in cyclic disulfide-bridged peptides has become apparent. In many instances, classical oxidative cyclizations lead to peptide di- and multimerization or in unwanted cyclic structures. Genaxxon and its partners have gained in depth experience to overcome problems like that, thus being able to synthesize mono- and dicyclic peptides very efficiently.



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### From 50 to 1000 peptides

Epitope scanning is a very efficient method to check polyclonal antisera for the specific epitopes the antibodies are recognizing. The principle is to synthesize series of overlapping peptides covering the whole protein sequence and to test the polyclonal (or monoclonal) antibodies against each of them. This technique allows for easy and quick identification of the parts of the protein which are recognized by the antibodies.

Other applications, such as lymphocyte stimulators or enzyme inhibitors also require large numbers of peptides.

Genaxxon offers custom peptide synthesis services at low cost. Among the existing possible issues to this problem (peptides on membranes, paper, pins or coated on ELISA plates) Genaxxon chose to develop the service in order to answer in the most flexible way to these needs: in many instances, a soluble, cleaved peptide has many advantages over a peptide fixed on a solid support, because the latter cannot be used readily in many biological experiments. We can now propose series of peptides in quantities ranging from 1 mg up to 20 mg at very attractive prices depending on the length and the number of peptides as well as the quantity needed.

### Technical information

The first choice solvent for most peptides is ultra-pure water. If the peptide does not dissolve easily, sonication may help. Dilute acetic acid or ammonium hydroxide may be necessary to dissolve basic or acidic peptides, respectively. For peptides which are not dissolved by these methods, guanidinium chloride or acetonitrile may be necessary. Use of these compounds may have a detrimental effect on some experiments, so we recommend that care be taken when designing the peptide. Residues such as Ala, Cys, Ile, Leu, Met, Phe and Val increase the chance that the peptide will have solubility problems.

Most peptides are stable indefinitely at -20 °C, especially if they have been lyophilized and stored in a desiccator. Allow lyophilized peptides to come to room temperature before exposing them to air. This will minimize moisture-related effects.

When lyophilization is not possible, the next best method of storage is small, working-size aliquots. For peptides which contain Cys, Met or Trp, deoxygenated buffers are a must for solubilization because the peptides will readily oxidize to air. Nitrogen or argon passed slowly over the peptide before closing the vial will also decrease oxidation.

Peptides containing Gln or Asn are also easily degraded. All of these peptides have a limited lifetime in comparison to those that do not contain these problem residues.

### Delivery

› 70% pure peptides are shipped lyophilized within 14-20 working days of receipt of the order. For purified peptides (› 85% and › 95% pure), 10-20 additional days are required.