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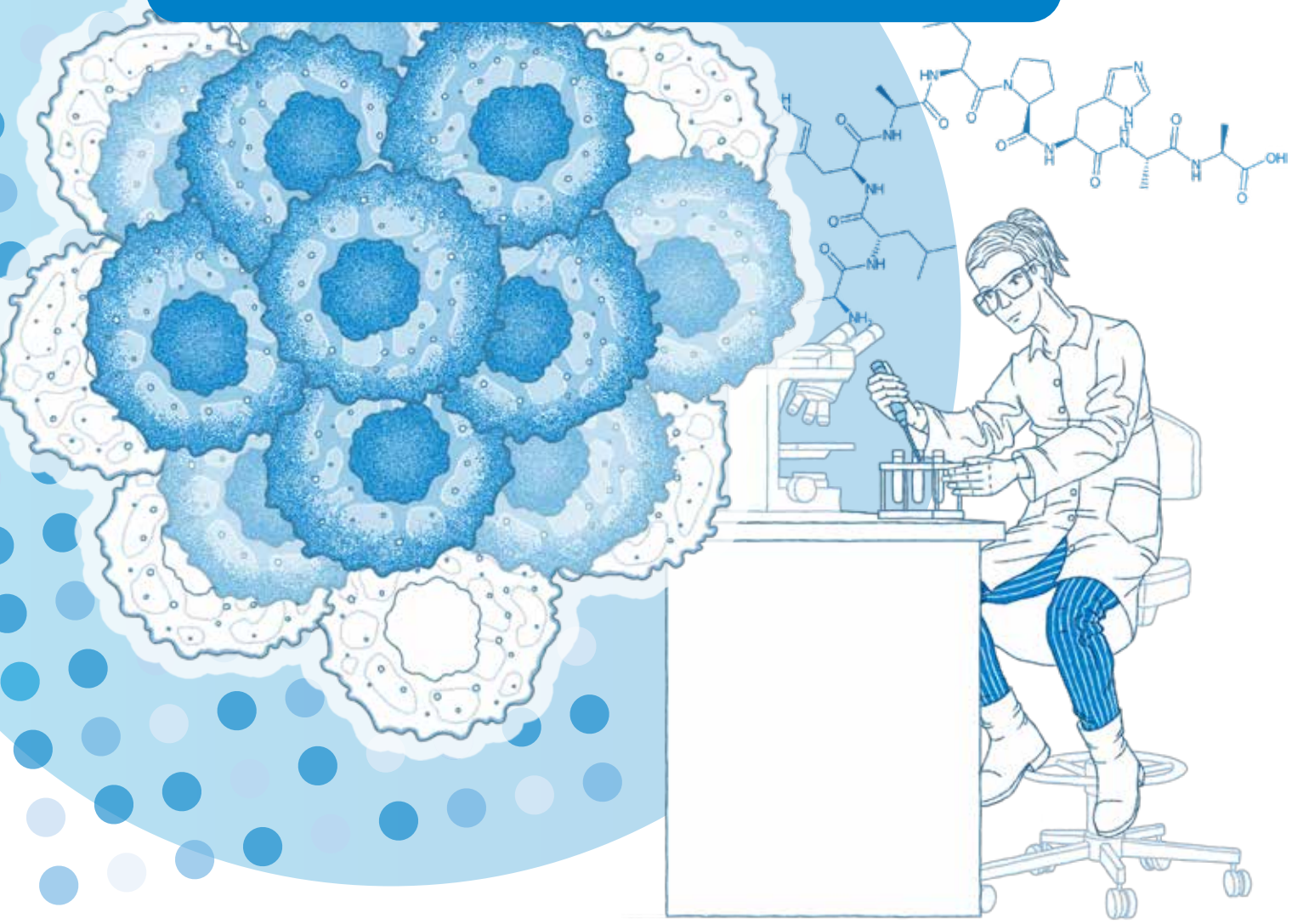
peptides&elephants' Cancer Peptide Pools



Peptide Pools for Cancer Research

Peptide pools have become indispensable tools in immuno-oncology, enabling researchers to analyze T-cell responses against tumor-associated and tumor-specific antigens. Comprised of overlapping synthetic peptides that span the full sequence of a given protein, peptide pools allow for robust and cost-effective activation of antigen-specific $CD4^+$ and $CD8^+$ T cells. The activated T cells can then be detected, quantified or isolated for analysis based on released cytokines and upregulated activation markers.

Compared to full-length proteins, peptide pools offer several advantages for T-cell stimulation assays: They can be reproducibly manufactured under strict quality standards (e.g., ISO 9001:2015), while protein expression systems are not required. Additionally, peptide sequences can be precisely tailored, allowing for the inclusion of sequence variants or post-translational modifications.

Although peptide pools were first introduced in immunological research in 1980, their full potential has only been realized in recent years. Today, they are widely used across diverse areas of immunology, including:

- antigen and epitope discovery
- development of adoptive T-cell therapies and cancer vaccines
- immune monitoring in research and clinical trials
- development of diagnostic tests.

Tumor-Associated and Tumor-Specific Antigens

Tumor antigens are broadly categorized into tumor-associated antigens (TAAs) and tumor-specific antigens (TSAs), reflecting their origin and relevance in cancer immunology. Tumor-associated antigens are self-proteins that are abnormally expressed in tumors but are also present in healthy tissues – at lower levels or in different physiological contexts. In contrast, tumor-specific antigens arise from tumor-unique mutations or viral oncogenesis and are not found in healthy cells. While tumor-specific antigens offer higher specificity, tumor-associated antigens provide broader coverage and are frequently used in functional studies and immunomonitoring across diverse tumor types.

Due to their individualized nature, tumor-specific antigens are rarely available as catalog peptides, since they typically result from patient-specific mutations that require custom synthesis.

Tumor-associated antigens can be classified according to the nature and pattern of their expression:

Overexpressed Self-Antigens:

These proteins are expressed at low levels in healthy tissue but are significantly upregulated in tumor cells. Their overexpression often reflects the tumor's altered metabolism, cell cycle regulation, or anti-apoptotic signaling.

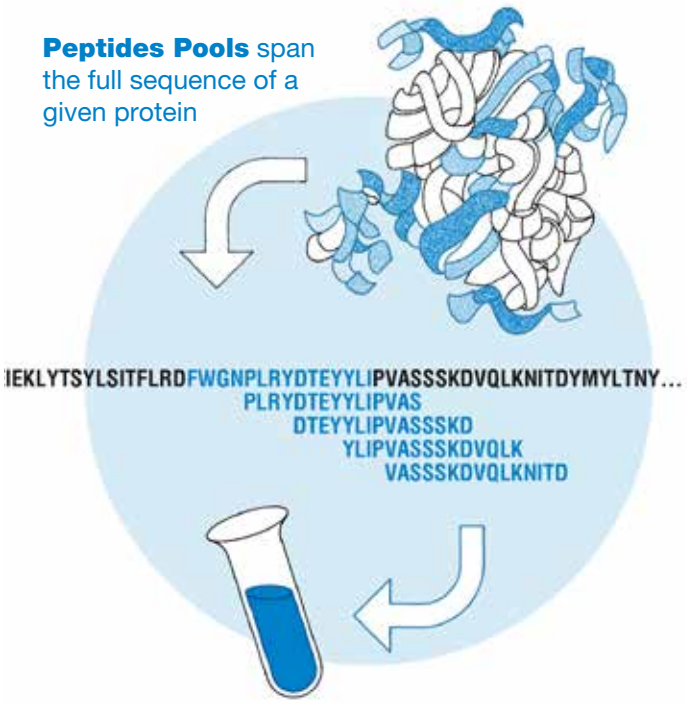
Differentiation Antigens:

These antigens are associated with a specific tissue or lineage and are retained in tumors derived from that tissue. They are particularly relevant in cancers where the malignant cells maintain features of their origin.

Cancer-Testis Antigens (CTAs):

Cancer-Testis Antigens are normally restricted to germline tissues, such as testis or placenta, which are immune-privileged and lack MHC class I expression. Their aberrant expression in various cancers makes them ideal targets for immunotherapy due to their minimal expression in normal somatic tissues.

peptides&elephants' Tumor-associated Peptide Pools



Discover the growing selection of **peptides&elephants' peptide pools**, designed to meet the specific needs of immuno-oncology researchers:

- **Tumor-Associated Peptide Pools:** 15-mer peptides overlapping by 11 amino acids
- **Broad MHC Coverage:** For binding to both MHC Class I and II
- **High Efficiency:** One unit stimulates up to 2.5 × 10^8 cells
- **Versatile Use:** Perfect for a variety of experimental setups

Get these peptides directly from us – powering research that makes a difference.

Overexpressed Self-Antigens

Alpha-crystallin B chain Peptide Pool, human – LB02149
41 overlapping peptides, from a peptide scan through human Alpha-crystallin B chain protein (UniProt ID: P02511)

CEP55 Peptide Pool, human – LB01751
114 overlapping peptides, from a peptide scan through human Centrosomal Protein 55 (UniProt ID: Q53EZ4)

ENO1 Peptide Pool, human – LB01461
106 overlapping peptides, from a peptide scan through human Enolase 1, (Alpha), isoform CRA_a (UniProt ID: A0A024R4F1; an automated TrEMBL entry related to ENO1, UniProt P06733)

ERBB2/HER2 Peptide Pool, human – LB02229
311 overlapping peptides, in two subpools of 156 & 155 peptides, from a peptide scan through human Receptor tyrosine-protein kinase erbB-2 (UniProt ID: P04626)

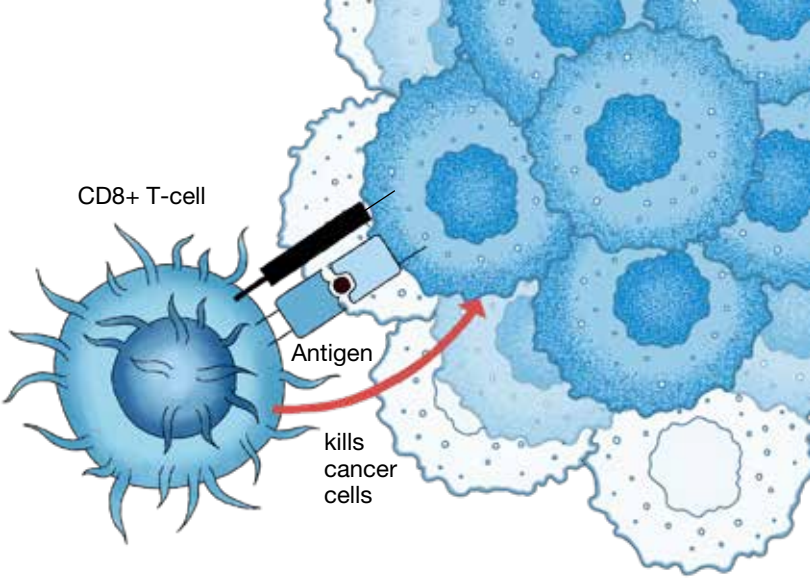
Glyceraldehyde-3-phosphate dehydrogenase Peptide Pool, yeast – LB01930
81 overlapping peptides, from a peptide scan through Glyceraldehyde-3-phosphate dehydrogenase (UniProt ID: Q5ADM7) from Candida albicans.

IGF2BP3 Peptide Pool, human – LB01757
142 overlapping peptides, from a peptide scan through human IGF2 mRNA-binding protein 3 (UniProt ID: O00425)

KRT18 Peptide Pool, human – LB02381
105 overlapping peptides, from a peptide scan through human Keratin, type I cytoskeletal 18 (UniProt ID: P05783)

MUC1 Peptide Pool, human – LB02522
115 overlapping peptides (311 total minus 196 duplicates), from a peptide scan through human Mucin-1 (UniProt ID: P15941)

These proteins are expressed at low levels in healthy tissues, but can become abnormally upregulated in cancer cells.



PBK Peptide Pool, human – LB01750
78 overlapping peptides, from a peptide scan through human Lymphokine-activated killer T-cell-originated protein kinase (UniProt ID: Q96KB5)

SOX2 Peptide Pool, human – LB01348
77 overlapping peptides, from a peptide scan through human Transcription factor SOX-2 (UniProt ID: P48431)

Survivin Peptide Pool, human – LB01349
33 overlapping peptides, from a peptide scan through human Baculoviral IAP repeat-containing protein 5 (BIRC5; UniProt ID: O15392)

Survivin Peptide Pool, mouse – LB01731
33 overlapping peptides, from a peptide scan through mouse Baculoviral IAP repeat-containing protein 5 (BIRC5; UniProt ID: O70201)

THBS2 Peptide Pool, human – LB02383
291 overlapping peptides, in two subpools of 146 & 145 peptides, derived from a peptide scan through human Thrombospondin-2 (UniProt ID: P35442)

TPBG Peptide Pool, human – LB02380
103 overlapping peptides, from a peptide scan through human Trophoblast glycoprotein (UniProt ID: Q13641)

TTK Peptide Pool, human – LB01756
212 overlapping peptides, from a peptide scan through human Dual specificity protein kinase TTK (UniProt ID: P33981)

TWIST1 Peptide Pool, human – LB02382
48 overlapping peptides, from a peptide scan through human Twist-related protein 1 (UniProt ID: Q15672)

These antigens are highly tissue-specific. They are shared between the healthy tissue and its corresponding tumor.

Differentiation Antigens

AFP Peptide Pool, human – LB01654
150 overlapping peptides, from a peptide scan through human Alpha-fetoprotein (UniProt ID: P02771)

gp100 Peptide Pool, human – LB01350
163 overlapping peptides, from a peptide scan through human Melanocyte protein Pmel 17 (gp100; UniProt ID: P40967)

Melan-A/MART-1 Peptide Pool, human – LB01404
27 overlapping peptides, from a peptide scan through human Melanoma antigen recognized by T-cells 1 (MART-1; UniProt ID: Q16655)

Mesothelin MSLN Peptide Pool, human – LB02228
155 overlapping peptides, from a peptide scan through human Mesothelin (UniProt ID: Q13421)

Mesothelin 290-625 Peptide Pool, human – LB01568
82 overlapping peptides, from a peptide scan through human Mesothelin (UniProt ID: Q13421)

Meso GPI 271-630 Sub Peptide Pool, human – LB01445
88 overlapping peptides, from a peptide scan through aa271-aa630 of human Mesothelin (UniProt ID: Q13421)

Myeloperoxidase (MPO) Peptide Pool, human – LB02483
184 overlapping peptides, from a peptide scan through human Myeloperoxidase (UniProt ID: P05164)

Tyrosinase Peptide Pool, human – LB01351
130 overlapping peptides, from a peptide scan through human Tyrosinase (UniProt ID: P14679)

Tyrosinase-related protein 2 Peptide Pool, human – LB01352
127 overlapping peptides, from a peptide scan through human L-Dopachrome tautomerase (Tyrosinase-related protein 2; UniProt ID: P40126).

WT1 Peptide Pool, human – LB01471
110 overlapping peptides, from a peptide scan through human Wilms tumor protein (WT33; UniProt ID: P19544)

Cancer-Testis Antigens (CTAs)

Cancer-Testis Antigens are restricted to germline tissues, but are aberrantly expressed in various cancer types.

CT45A1 Peptide Pool, human – LB01672
45 overlapping peptides, from a peptide scan through human cancer/testis antigen family 45 member A1 (UniProt ID: Q5HYN5)

CT83/KKLC1 Peptide Pool, human – LB01673
26 overlapping peptides, from a peptide scan through human Kita-kyushu lung cancer antigen 1 (UniProt ID: Q5H943)

LAGE1/CTAG2 Peptide Pool, human – LB01670
50 overlapping peptides, from a peptide scan through human Cancer/testis antigen 2 (UniProt ID: O75638)

MAGEA1 Peptide Pool, human – LB01402
75 overlapping peptides, from a peptide scan through human Melanoma-associated antigen 1 (UniProt ID: P43355)

MAGEA3 Peptide Pool, human – LB02268
76 overlapping peptides, from a peptide scan through human Melanoma-associated antigen 3 (UniProt ID: P43357)

MAGEA4 Peptide Pool, human – LB01692
77 overlapping peptides, from a peptide scan through human Melanoma-associated antigen 4 (UniProt ID: P43358)

MAGEA6 Peptide Pool, human – LB01749
76 overlapping peptides, from a peptide scan through human Melanoma-associated antigen 6 (UniProt ID: P43360)

MAGEA10 Peptide Pool, human – LB02512
90 overlapping peptides, from a peptide scan through human Melanoma-associated antigen 10 (UniProt ID: P43363)

MAGEA11 Peptide Pool, human – LB02572
105 overlapping peptides, from a peptide scan through human Melanoma-associated antigen 11 (UniProt ID: P43364)

MAGEC1 Peptide Pool, human – LB01693
283 overlapping peptides, from a peptide scan through human Melanoma-associated antigen C1 (UniProt ID: O60732)

MAGED1 Peptide Pool, human – LB01668
192 overlapping peptides, from a peptide scan through human Melanoma-associated antigen D1 (UniProt: Q9Y5V3)

NY-ESO-1 Peptide Pool, human – LB01362
43 overlapping peptides, from a peptide scan through human Cancer/testis antigen 1 (NY-ESO-1; UniProt ID: P78358)

NY-ESO1 Sub Peptide Pool (>95% HPLC) – LB01704
9 overlapping peptides, from a peptide scan through human Cancer/testis antigen 1 (NY-ESO-1; UniProt ID: P78358)

PRAME/OIP4 Peptide Pool, human – LB01686
125 overlapping peptides, from a peptide scan through human Melanoma antigen preferentially expressed in tumors (UniProt ID: P78395)

SSX4 Peptide Pool, human – LB02520
45 overlapping peptides, from a peptide scan through human Protein SSX4 (UniProt ID: O60224)

SYCP1 Peptide Pool, human – LB02521
242 overlapping peptides, from a peptide scan through human Synaptonemal complex protein 1 (UniProt ID: Q15431)

TSGA10 Peptide Pool, human – LB01676
172 overlapping peptides, from a peptide scan through human Testis-specific gene 10 protein (UniProt ID: Q9BZW7)

XAGE-1 Peptide Pool, human – LB01669
18 overlapping peptides, from a peptide scan through human X antigen family member 1 (UniProt ID: Q9HD64)

Antigens of Oncogenic Viruses

Antigens from oncogenic viruses can serve as specific targets in virus-associated cancers. A comprehensive set of peptide pools covering antigens from oncoviruses is available in peptides&elephants' Viral Peptide Pool Collection brochure – and also online at **peptides.de**.

Supplementary Peptide Pools

In addition to peptide pools of Tumor-Associated Antigens, peptides&elephants offers a set of Supplementary Peptide Pools designed for contextual immunological analysis:

Immunoregulation, Inflammation, and Alloimmunity

Interleukin-17A Peptide Pool, human – LB01966
36 overlapping peptides, from a peptide scan through human Interleukin-17A human (UniProt ID: Q16552)

IFNB1 Peptide Pool, human – LB02001
44 overlapping peptides, from a peptide scan through Human Interferon beta (UniProt ID: P01574).

Aquaporin-4 Peptide Pool, human
78 overlapping peptides, from a peptide scan through human Aquaporin-4 protein (UniProt ID: P55087)

FKBP6 Peptide Pool, human – LB02222
79 overlapping peptides, from a peptide scan through human Inactive peptidyl-prolyl cis-trans isomerase FKBP6 (UniProt ID: O75344)

HMHA1 Peptide Pool, human – LB02513
282 overlapping peptides from a peptide scan through human Rho GTPase-activating protein 45 (HMHA1; UniProt ID: Q92619), source protein of the immunogenic HA-1 minor histocompatibility antigen.

Protein Downregulated in Tumors

HEPACAM Peptide Pool, human – LB02154
102 overlapping peptides, from a peptide scan through human Hepatocyte cell adhesion molecule protein (UniProt ID: Q14CZ8)

Peptide Pool Applications

Peptide pools are powerful tools for investigating antigen-specific T cell responses in a wide range of immunological assays. Whether used in basic research, translational studies, or clinical trials, they enable sensitive and reliable detection of functional immune activity.

Common assay types include:

Intracellular Cytokine Staining (ICS): Detection of cytokine production at the single-cell level by flow cytometry after peptide stimulation.

Enzyme-Linked ImmunoSpot (ELISpot) Assay: Highly sensitive method to quantify cytokine-secreting cells upon peptide stimulation.

Activation-Induced Marker (AIM) Assay: Identification of antigen-specific T cells based on upregulated surface markers after stimulation.

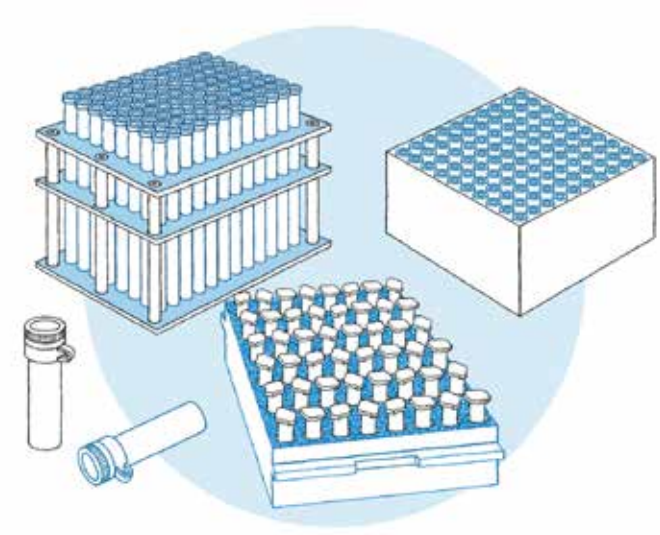
Tetramer / Multimer Staining: Visualization and quantification of peptide-MHC-specific T cells by flow cytometry.

Proliferation Assays (e.g., CFSE dilution): Measurement of T cell proliferation in response to peptide stimulation.

Cytotoxicity Assays: Functional assessment of T cell-mediated killing of peptide-pulsed target cells.

Peptide Pulsing for TCR Engineering or Expansion: Used in validating TCR specificity or expanding T cell populations with defined peptide stimuli.

Peptides&elephants' peptide pool collection aims to accelerate T-cell epitope research and strengthen the bridge between fundamental tumor immunology and clinical application.



Quality of peptides&elephants' Peptide Pools

All peptides provided by peptides&elephants are manufactured under a certified ISO 9001:2015 quality management system, ensuring reproducibility, reliability, and full documentation.

Our synthesis processes are designed to meet the highest purity and safety standards:

- All reagents and solvents are Animal Component-Free (ACF) and Animal Origin-Free (AOF).
- Cross-contamination is strictly prevented through validated workflows and dedicated production lines.
- Sequence integrity is ensured via capping steps.
- Peptides are sterile and free of endotoxins, ready for use in sensitive immunological assays.

Contact & Ordering

For further information about our peptide pools or to place an order, feel free to get in touch with our scientific support team.

We're happy to provide assistance with product selection, technical documentation, and tailored solutions.

For product details and online ordering, simply scan the QR code or visit **peptides.de**.

Discover new peptide solutions, technical resources, and case studies – connect with us on **LinkedIn**.

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We are big in peptides

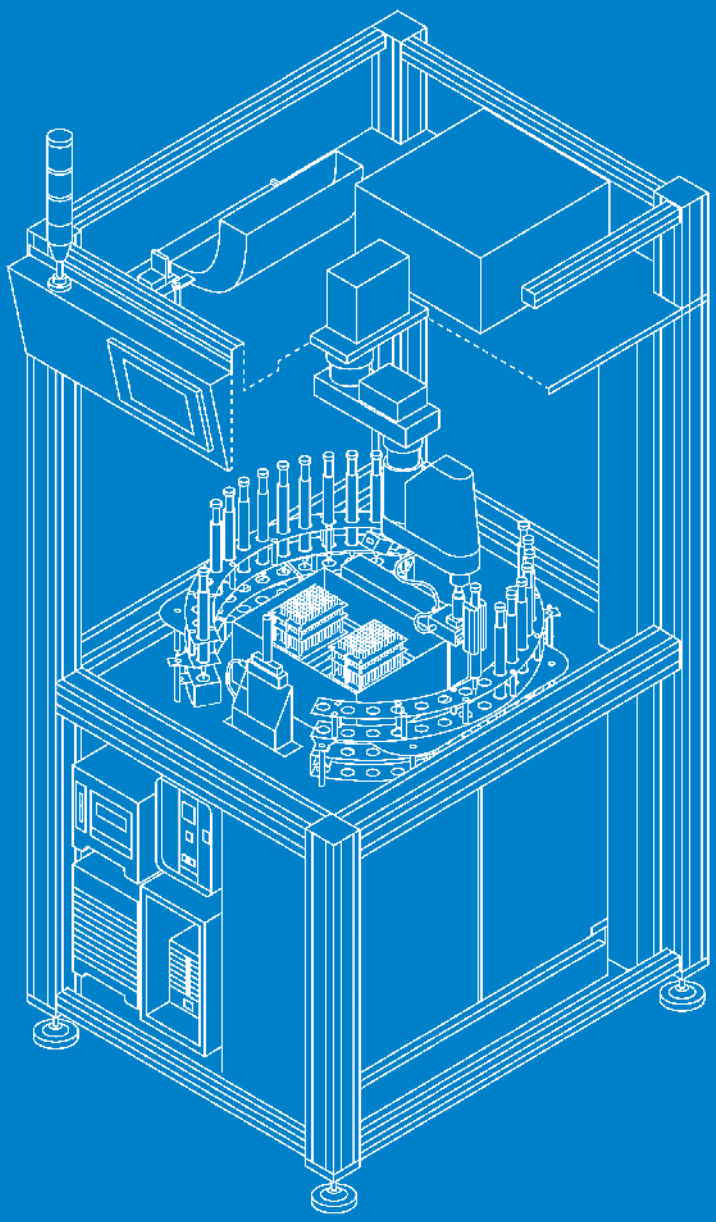
Our mission is to provide high quality peptides quickly and efficiently

peptides&elephants develops innovative synthesis robots and supplies scientists worldwide with high-quality peptide products – since 2001.

Our newest proprietary ultra sound peptide synthesis platform (USPS®) enables us to produce hundreds of peptides overnight!

Our patented USPS® platform is a significant step toward more efficient and sustainable peptide manufacturing.

As a manufacturer, we can offer high-quality peptides at an affordable price – quickly and efficiently.



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