

Innovative
Peptide
Solutions

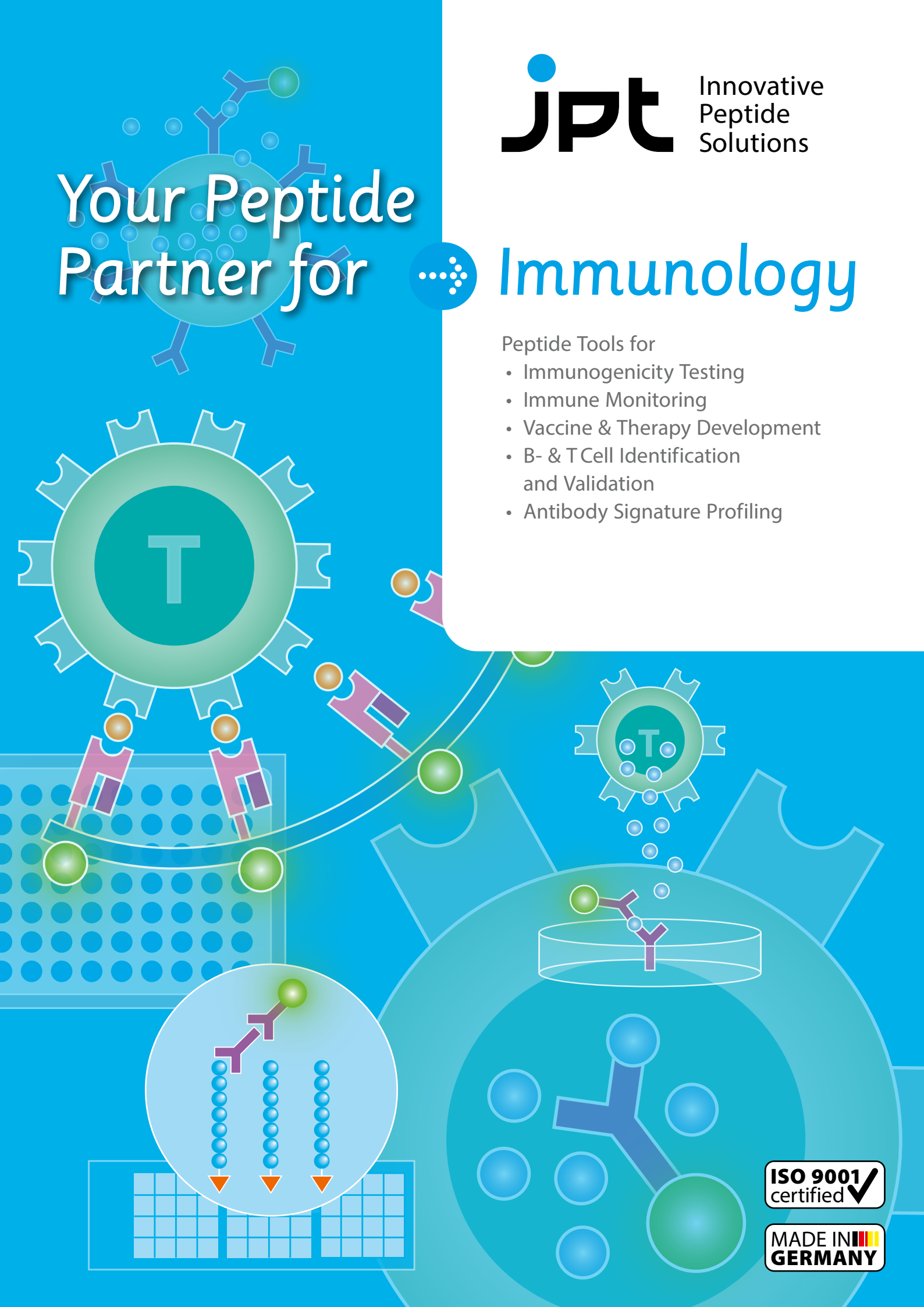
Your Peptide Partner for



Immunology

Peptide Tools for

- Immunogenicity Testing
- Immune Monitoring
- Vaccine & Therapy Development
- B- & T Cell Identification and Validation
- Antibody Signature Profiling



ISO 9001
certified ✓

MADE IN  GERMANY

... We are the Peptide Experts

Wide Variety of Peptide Formats

JPT has developed a portfolio of innovative technologies, products and services that help advance the development of new immunotherapies and vaccines, proteomics studies and drug discovery. Among our key technologies are:

- **Custom & Specialty Peptides:** We go the extra mile to get your peptides done!
- **PepMix:** Antigen-spanning peptide pools to stimulate CD4+ and CD8+ T cells.
- **PepTrack:** Peptide libraries optimized for different types of assays.
- **Clinical Peptides & Pools:** Peptides for immune monitoring or therapy & vaccine development.
- **PepStar:** Peptide microarrays for humoral immune response profiling.
- **SPOT:** High-throughput peptide formats for screening and discovery.
- **SpikeTides & Spike Mix:** Light, SIL or quantified peptides for MS-based assays.

Our Quality Promise

We are committed to the highest quality standards and have been ISO 9001 certified since 2004. An independent agency audits us annually for recertification. We produce exclusively in our labs in Europe.

Since 2020, our immune monitoring peptide tools largely contributed to the development of several COVID vaccines and many important studies in the field.

Thousands of peer-reviewed publications demonstrate the success of our peptide products.



Scientific knowledge

A large percentage of our employees hold scientific degrees in natural sciences or medicine. We take pride in our combined scientific knowledge that enables us to understand your work, provide the best quality peptides and advise you on all things peptide.

Contact our customer support or technical support teams at any time!



Get in touch!



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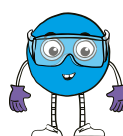


JPT – Specialists in Immunology Peptides

We are the peptide provider for all peptide related projects in the development of cell- and immunotherapy, vaccine development and immune monitoring. Our proprietary technologies support your research and development goals in studying and battling infections, cancer, autoimmune diseases as well as allergies.

Selected Application Notes by our Customers

- ➔ *"Cross-reactive T cells enhance immune responses in SARS-CoV-2 infection and vaccination"*
L. Loyal and A. Thiel
- ➔ *"A Fast & Low Cost Process for Neo-Epitope Based Immune Monitoring"*
E. Derhovanessian, U. Luxemburger, M. Beck, F. Gehring, [...] and U. Sahin
- ➔ *"Developing Multi-HIV Antigen Specific T Cells as a Component of a Cure Strategy"*
S. Lam, C. Russell Cruz and C. Bollard
- ➔ *"Peptide-Stimulated Expansion of Virus-Specific T Cells for Preventative Treatment after Allogeneic Stem Cell Transplantation"*
R. Gary, M. Aigner, A. Moosmann and A. Gerbitz
- ➔ *"Strategy for Identification of CD8 T-cell Epitopes in a Viral Protein"*
R. Holtappels
- ➔ *"Multiple Sclerosis and Epstein-Barr Virus Infection – An Epitope Mapping Study"*
U. Reimer, B. Wunderlich, C. Scheibenbogen and K. Ruprecht
- ➔ *"Characterization of the Aspergillus-Specific T-Cell Response by Using Crf1 and Catalase1 Overlapping Peptides"*
H. Jolink and M.H.M. Heemskerck
- ➔ *"PepMix Peptide Pools for Clinical Applications: T Cell Therapy for Viral Infections after Hematopoietic Stem Cell Transplant"*
J. M. Keirnan, C. M. Rooney, and A. M. Leen
- ➔ *"Rapid Mimotope Optimization for Pharmacokinetic Analysis of the Novel Therapeutic Antibody IMAB362"*
M. Daneschdar, HU. Schmoldt, L. M. Plum, Y. Kühne, M. Fiedler, A. Masch, K. Schnatbaum, J. Jansong, J. Zerweck, H. Wenschuh, U. Reimer, Ö. Türeci and U. Sahin
- ➔ *"BioTides as High Throughput Screening Tool for the Identification of Antibody Binding Sites"*
Y. Kühne, T. Rösler, C. Fleig-Krämer, C. Haarstrich, K. Cappel, R. Hipfel, A. Rothermel and U. Sahin

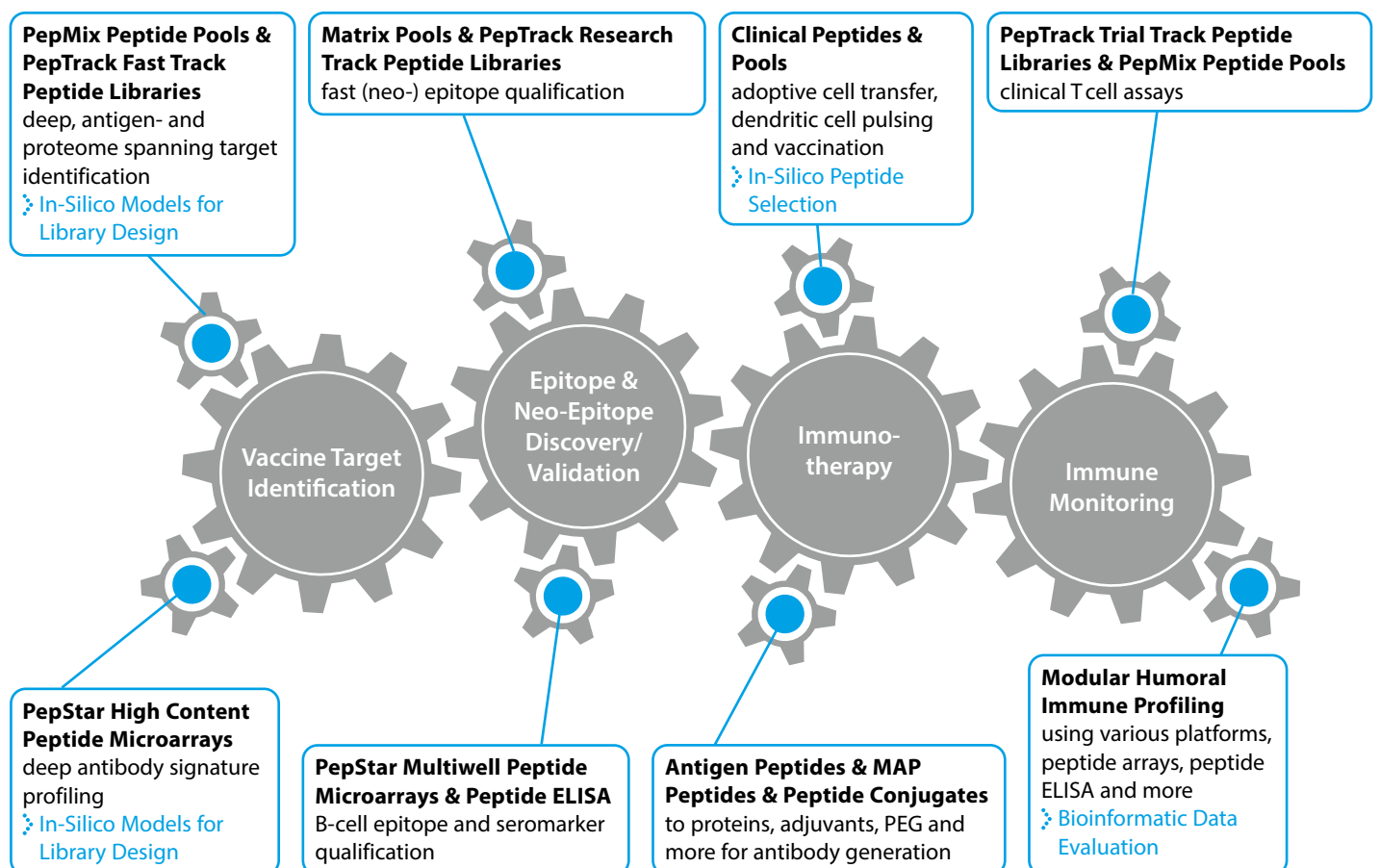


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Our Technologies & Products

Cellular Immunity

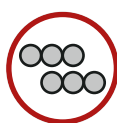


Humoral Immunity

Cellular Immunity

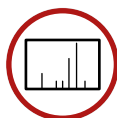
JPT offers a broad range of products and services to address cellular immunity. These include PepTrack high content peptide libraries enabling fast target discovery and neo-epitope qualification, PepMix Peptide Pools for reliable clinical immune monitoring, Clinical Peptides for cell- and immunotherapy.

➤ Let's talk about peptides for T cell assays!



Peptide & Pool Design

There are many ways to design your peptide library or pool. Ask us for support!



Peptide Purity

Even small impurities may create huge problems in T cell assays. However, the impact depends strongly on the application. From research grade over development grade to trial grade, we offer our peptides at many purity levels. Let us help to select your specification.



Solubility

Ever struggled with dissolving a peptide or having limiting solvent choices? We can help you predict the solubility of a peptide and select the according sequences.



Stability & Storage

About 20 % of all peptides show a limited shelf stability. How do you recognize and handle potentially unstable peptides? We will support you.



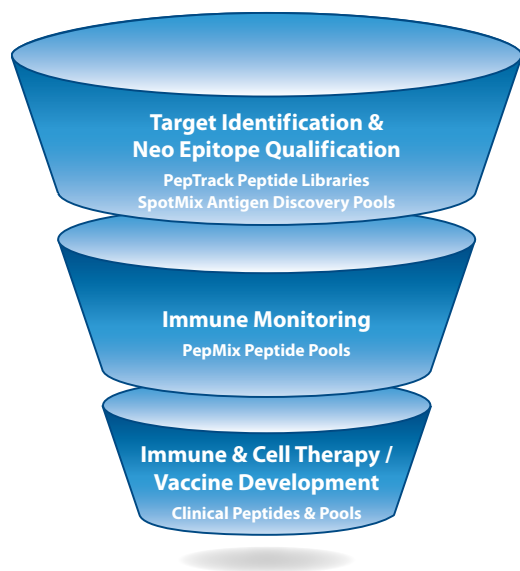
Peptide Content & Net Weight

In addition to side products analyzed by HPLC, peptides contain non-peptidic components. The quantification of those is essential to accurately adjust peptide concentration.



Cross Contamination

Contamination with other peptides, causing false positive T cell responses, poses a challenge for immunology products. Learn about our offers to warrant line clearance.



Benefit: Lowest cost per peptide, ultra fast turnaround time

Benefit: CD4⁺ and CD8⁺ detection, robust responses and assay validation

Benefit: Regulated production and know-how for clinical applications

Antigen Peptides

Our individual antigen peptides represent immune dominant epitopes from different viral, bacterial and other species, whereas our PepMix Peptide Pools reproduce a whole protein antigen by a mixture of overlapping peptides. Our antigen peptides are purified to >90% and in stock for a quick delivery. We have more than 350 Antigen Peptides in stock from more than 40 different species!

Specifications

- Trial Grade: each peptide purified to > 90% (HPLC/MS)
- Quick Delivery Time: 2-5 days
- HPLC-MS analyses included to confirm the identity quality
- ISO 9001 certified production
- Optimized synthesis protocols avoid contaminants and side products

Applications

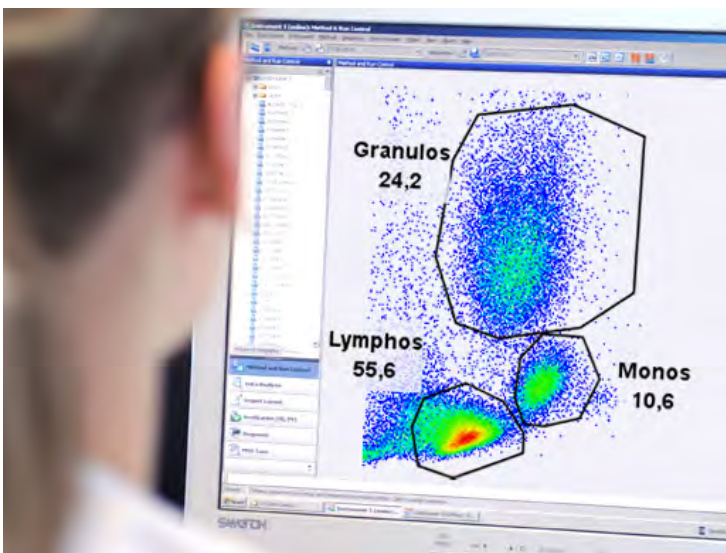
- Stimulation of antigen-specific CD8⁺ T cells
- Immune monitoring of cellular immune responses
- Validation of multimer assay results

Benefits

- Production ISO 9001 certified exclusively in Europe
- Proven track record for applications in clinical studies
- Freeze-dried for long shelf-stability
- Off-the-shelf for quick delivery

Selected References

- ➔ *"IFNγ-induced stem-like state of cancer cells as a driver of metastatic progression following immunotherapy"*
Beziaud et al., Cell Stem Cell (2023)
- ➔ *"A single administration of hIL-7-hyFc induces long-lasting T cell expansion with maintained functions and TCR diversity"*
Kim et al., Blood Advances (2022)
- ➔ *"Rotavirus-Induced Expansion of Antigen-Specific CD8 T Cells Does Not Require Signaling via TLR3, MyD88 or the Type I Interferon Receptor"*
Muleta et al., Frontiers in Immunology (2022)
- ➔ *"Evaluation of Adjuvant Activity and Bio-Distribution of Archaeosomes Prepared Using Microfluidic Technology"*
Jia et al., Pharmaceutics (2022)
- ➔ *"An experimental test of the nicotinic hypothesis of COVID-19"*
Godellas et al., PNAS (2022)
- ➔ *"Mitochondrial fission induces immunoescape in solid tumors through decreasing MHC-I surface expression"*
Lei et al., Nature Communication (2022)
- ➔ *"CD206+ tumor-associated macrophages cross-present tumor antigen and drive anti-tumor immunity"*
Modak et al., JCI Insight (2022)



Antigen Peptides are used for antigen-specific stimulation in T cell assays.

PepMix Peptide Pools for T Cell Assays

JPT's PepMixes are synthetic peptide pools containing overlapping peptide scans through antigens or selected MHC restricted epitopes. PepMixes are used to stimulate antigen-specific T cells in vaccine development, cell and immunotherapy and for immune monitoring.

Benefits

For reliable and validated T cell assays such as ELISPOT, appropriate positive and negative controls are essential to confirm proper functionality of the assay and viability of the cells. Compared to commonly used controls like PHA, ConA or full length antigens, synthetic peptide pools offer the advantage of a high batch-to-batch reproducibility, application of reliable chemical and biochemical QC/QA measures, longer stability and extremely efficient immunostimulation.

Applications

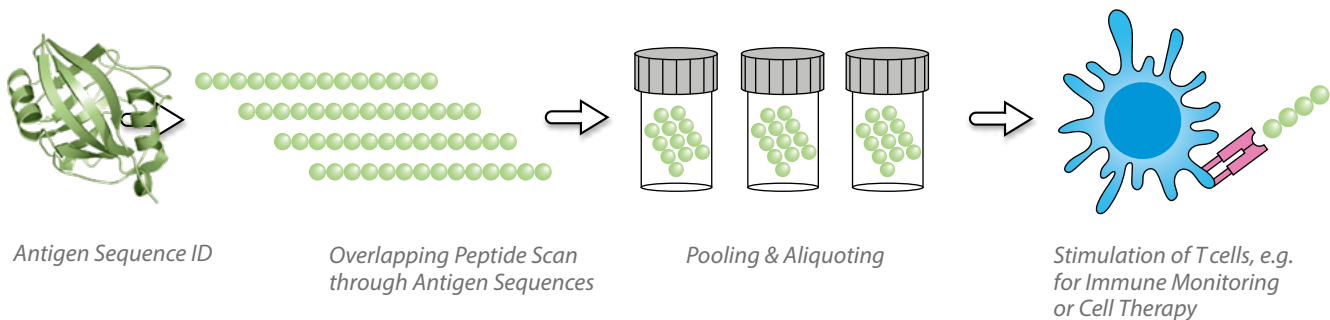
Efficient *in vitro* stimulation of antigen-specific CD4⁺ and CD8⁺ T cells

- For monitoring of cellular immune responses
- For vaccine efficacy testing
- For cell therapy approaches
- As positive and negative controls
- For vaccine target identification
- For T cell epitope mapping

Selected References

- ➔ "Engineered tumor-specific T cells using immunostimulatory photothermal nanoparticles"
Sweeney et al., Cytotherapy (2023)
- ➔ "A protective, single-visit TB vaccination regimen by co-administration of a subunit vaccine with BCG"
Dijkman et al., Vaccines (2023)
- ➔ "High-dimensional analysis of 16 SARS-CoV-2 vaccine combinations reveals lymphocyte signatures correlating with immunogenicity"
Nuñez et al., Nature Immunology (2023)
- ➔ "Personalized RNA neoantigen vaccines stimulate T cells in pancreatic cancer"
Rojas et al., Nature (2023)
- ➔ "CD40 ligand stimulation affects the number and memory phenotypes of human peripheral CD8⁺ T cells"
Choi et al., BMC Immunology (2023)

Production and use of PepMix Peptide Pools. Peptides are synthesized, purified and pooled according to a validated pooling method ensuring presence of all the peptides in the mix.





Have a look
at our
World of
PepMix



Visit the World of PepMix

We developed different peptide pools formats that are suited for a variety of applications. Have a look at our World of PepMix for further information!

Check our
full and
up-to-date
list



We offer 600 different peptide pools off-the-shelf!

- Proteins from infectious organisms:
from AAV to ZIKV, more than 50 organisms
- Tumor Associated Antigens:
from ACTL8 to WT1, more than 70 PepMixes
- Positive & Negative Controls:
the best control pool for every setting
- Epitope Mapping Peptide Sets:
convenient sets of matrix pools with individual peptides
- Pan Select and Ultra Pools:
special pool layouts for specific applications
- PepMix Collections:
convenient sets of related PepMixes

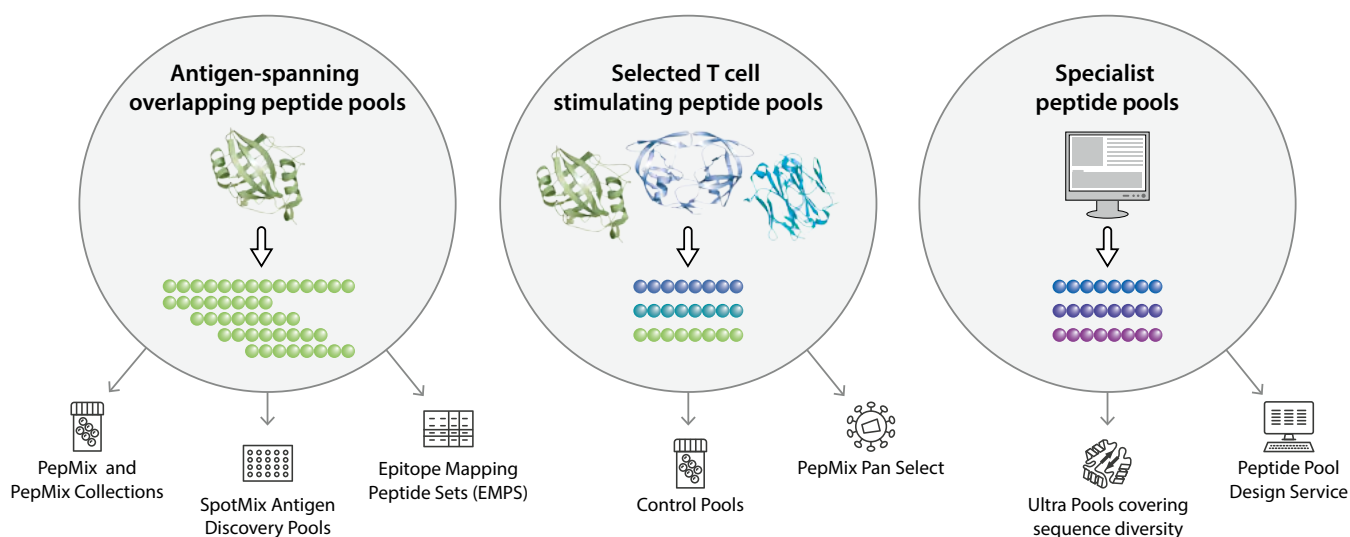
Is your antigen not available? Do you need a special specification? We produce custom PepMixes tailored to your needs!

Contact our support team at peptide@jpt.com!

“[...] we utilised the CEF Pool (extended) as well as a custom synthesized PepMix spanning the core region of HBV genotype D. [...] Our entire experience with JPT, from ordering/delivery to use in the lab was excellent. [...] JPT will remain our “go-to” company for purchasing peptides.”

L. Pallett, Infection and Immunity, University College London, UK

Peptide Pool Formats



PepTrack Peptide Libraries

We offer tailored PepTrack peptide libraries of immunogenic or antigenic peptides with flexible specifications. To avoid false positives or toxic inhibition of T cells, we defined specific parameters for synthesis, purification and analysis.

Applications

- Immune monitoring profiling by ELISpot
- T cell epitope discovery, mapping & validation
- Peptide vaccine & development
- Optimization and validation of T cell assays
- Translation of NGS results into neo epitope libraries
- Vaccine efficacy testing
- Immunotherapy
- Biological screening

Benefits

- Flexible peptide libraries tailored for cellular assays
- ISO 9001:2015 certified, audits welcome!
- Protocols to avoid toxic inhibition or de novo epitopes
- Aliquotation, pooling and advanced QC upon request
- Post-Translational Modifications (PTMs) available
- Proven track record for application in clinical studies

Selected References

- ➔ *"Long acting Capsid Inhibitor Protects Macaques from Repeat SHIV Challenges"*
Vidal et al., Nature (2021)
- ➔ *"SARS-CoV-2 Mutations in MHC-I-Restricted Epitopes Evade CD8+ T Cell Responses"*
Benedikt Agerer et. al., Science Immunology (2021)
- ➔ *"Durvalumab with Platinum-Pemetrexed for Unresectable Pleural Mesothelioma: Survival, Genomic and Immunologic Analyses From the Phase 2 PrE0505 Trial"*
Patrick M Forde et al., Nature Medicine, (2021)

PepTrack Peptide Libraries are delivered freeze-dried in multiwell plates or tube racks (micronics).

“For reliable monitoring of tumor and virus specific T cell responses, we have a permanent need for peptides and peptide pools that are produced in a regulated environment for application in a clinical environment. JPT has been a long term and dedicated partner in this regard which continuously works on improving it's peptide based services.”

C. Scheibenbogen, Charité Berlin, Berlin, Germany

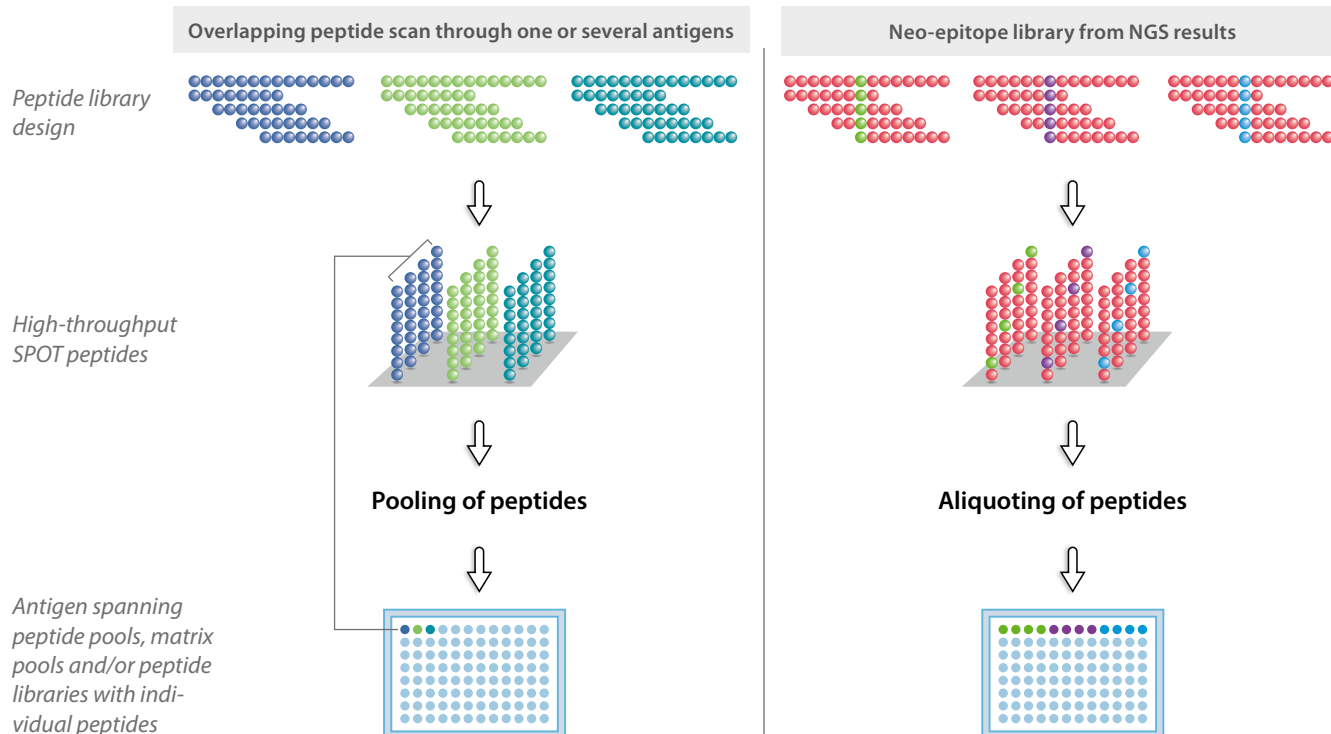


PepTrack Options

	PURITY	QC	SCALE	APPLICATIONS
Fast Track	Unpurified	Statistical LC-MS (5%)	10 -50 µg	<ul style="list-style-type: none"> • Neo-epitope prioritization • Antigen target identification • Pathogen-spanning T cell epitope discovery
Fast Track PLUS	Unpurified	LC-MS for each peptide	10 -50 µg	<ul style="list-style-type: none"> • Neo-epitope prioritization • Target identification • Biological screening
Research Track	Unpurified (each peptide detectable by LC-MS or MALDI-MS)	LC-MS for each peptide	1-5 mg	<ul style="list-style-type: none"> • T cell epitope discovery • Immunogenicity testing • Identification of immunodominant antigens
Research Track PLUS	Unpurified (Major product component is guaranteed to be peptide of interest)	LC-MS for each peptide	1-5 mg	<ul style="list-style-type: none"> • T cell epitope discovery • Target identification • Biological screening
Development Track	> 70 %	LC-MS for each peptide	1-5 mg	<ul style="list-style-type: none"> • Immune monitoring • T cell epitope mapping
Trial Track	> 80 % > 90 % > 95 % > 97 %	LC-MS for each peptide	1-5 mg	<ul style="list-style-type: none"> • Clinical Immune monitoring • Development of immunotherapy

Please inquire for larger scales and further options!

Provision of high-content Fast Track peptide libraries or SpotMix antigen discovery pools by SPOT technology.



Clinical Peptides

Our enhanced production environment for Clinical Peptides goes beyond ISO 9001 regulations and meet the more stringent product requirements for clinical trial immune monitoring and the development of vaccines or therapies. Thus, the resulting Clinical Grade & ISO Plus Peptides & Peptide Pools have been approved for several clinical trials in immuno and cellular therapy.

Why choose JPT?

- We have scientific experience in immune monitoring, vaccine and drug development
- Full analytical documentation (CoA, batch documentation, CMC & IND support)
- QC beyond ISO 9001, audits welcome!
- Publication record of clinical trials using JPT

Quality Assurance and Control

- Line clearance
- Cleaning validation
- Full traceability
- ADCF policy
- Incoming material inspection
- Vendor qualification
- QC/QA documentation
- Batch release control

Optional Chemical Analyses

- Residual solvent determination
- Water determination
- Peptide content determination
- Amino acid analysis
- UPLC measurement
- Stability and solubility testing
- Peptide sequencing

Optional Microbiological Analyses

- Bacterial endotoxin determination
- Sterility testing
- Bioburden determination
- Bacteriostatic and fungistatic effect of products

“We recently demonstrated the feasibility and clinical benefit associated with the infusion of rapidly generated single-culture VSTs, manufactured using JPT’s Clinical Grade PepMix Peptide Pools covering 12 immunogenic antigens from five viruses (EBV, AdV, CMV, BK, and HHV6). When administered to 11 allogeneic stem cell transplant recipients, 8 of whom had up to four active infections, these VSTs produced an overall 94 % response rate.”

A. M. Leen, Baylor College of Medicine, Houston, TX, USA



➤ Quality Levels on Demand

SPECIFICATION	ISO 9001 RUO	ISO 9001 ISO PLUS	ISO 9001 CLINICAL GRADE
Applications	Target/Epitope Discovery & Immune Monitoring	Clinical Immune Monitoring & Immune Diagnostics	Immuno- & Cell Therapy
Incoming Material Inspection	x	x	x
Dedicated Raw Materials			x
Vendor Qualification	x	x	x
Order-Dedicated Personnel			x
ADCF Policy	x	x	x
Batch Release	x	x	x
Certificate of Analysis	x	x	x
Document Management & LIM-Systems	x	x	x
Documented Cleaning & Calibration			x
Batch Documentation & CoA based on IND Requirements		x	x
Line Clearance		x	x*
Delivery in Certified Vials		x	x
Impurity ID & Qualification			report only (optional)
Optional Services: Residual Solvents; Sterility, Endotoxin; Monitored Storage...	x	x	x

* spatial separation of processes

Selected References

- "Rapid single-cell identification of Epstein-Barr virus-specific T cell receptors for cellular therapy"
Lammoglia Cobo et al., Cytotherapy (2022)
- "Clinical effects of administering leukemia-specific donor T cells to patients with AML/MDS post-allogeneic transplant"
Lulla et al., Blood (2021)
- "Designing Personalized Antigen-Specific Immunotherapies for Autoimmune Diseases – The Case for Using Ignored Target Cell Antigen Determinants"
Tian et al., Cells (2022)
- "Profiling SARS-CoV-2 HLA-I peptidome reveals T cell epitopes from out-of-frame ORFs"
Weingarten-Gabbay et al., Cell (2021)
- "Generation of glucocorticoid-resistant SARS-CoV-2 T cells for adoptive cell therapy"
Basar et al., Cell Reports (2021)

Custom & Specialty Peptides

The exceptional quality and reliability of our service has been appreciated by customers worldwide for many years. JPT is a leading supplier of custom peptides and specialty peptides, such as phosphopeptides, immunogenic peptides, cyclic peptides or peptide conjugates.

Options and Modifications

- Fluorescent and chromogenic peptides
- Internally quenched peptides (Abz/nitroTyr, EDANS/DABCYL, MCA/DNP) guaranteed without fluorescent impurities
- Immunogenic peptides (MAPs, palmitinylation, Pam3Cys labeling, etc.)
- Phospho-peptides and peptidomimetics (amide bond isosteres, non-natural amino acids, etc.)
- Non-commercial building blocks available
- Labeling (non-radioactive isotopes, chromophores, etc.)
- Site-directed conjugations with KLH, BSA, ovalbumin or other carriers
- Cyclic peptides (disulfide bridges, lactams, thioether-bridges, etc.)
- Long peptides (> 70 amino acids)
- Scales ranging from 1 mg to several grams

Need other modifications or specifications?
We will give our best to make it happen!
Contact us at peptide@jpt.com!

Benefits of JPT's Custom Peptides

- Proprietary synthesis technologies warrant fastest turnaround at most competitive pricing
- Reliable and stringent QC/QA
- ISO 9001 certified
- Rapid order processing
- Large variety of chemistry protocols
- Fully automated pooling, aliquoting and vialing processes
- Solubility, stability and sterility testing optional
- Personal consultation with experienced scientists
- Highest purities available (> 95 %, > 97 %)
- Full range of analyses including LC-MS (trap and/or quad), MALDI-MS, HPLC, AAA, NMR, CE, UPLC, HR-MS, as well as peptide content determination to confirm the identity and demonstrate the high quality of our peptides
- Substantial, long-standing expertise in providing custom peptides
- Highly skilled and committed scientific staff

.....
Freeze dried peptides are delivered with full analytical coverage.



Quality Assurance

- JPT's entire peptide production, purification and analysis procedures are backed by a stringent DIN ISO 9001:2015 certified Quality Management System
- All quality relevant processes are well documented and regulated according to a comprehensive SOP system
- All peptide production is performed at JPT's headquarters in Berlin, Germany under continuous quality measures
- All peptides assembled from components that are of non-animal origin (ADCF)

Selected References

- ➔ "The V2 domain of HIV gp120 mimics an interaction between CD4 and integrin $\alpha 4\beta 7$ "
Van Ryk et al., PLoS Pathogens (2023)
- ➔ "Neuroprotective Effects of a Cholecystokinin Analogue in the 1-Methyl-4-Phenyl-1,2,3,6-Tetrahydropyridine Parkinson's Disease Mouse Model"
Zhang et al., Frontiers in Neuroscience (2022)
- ➔ "LTX-315 and adoptive cell therapy using tumorinfiltrating lymphocytes generate tumor specific T cells in patients with metastatic soft tissue sarcoma"
Nielsen et al., Oncoimmunology (2023)

“Our research relies heavily on developing robust high-throughput screens with fluorescent peptides. We have found that JPT's are the best on the market because the signal-to-noise ratio is very high, providing the sensitivity we need for the screens. Their peptides always perform well. In addition, the knowledge, wonderful customer support, and fast turnaround time provided by JPT have been invaluable in helping us develop the best peptides for our assays.”

Carla Koehler, Professor, UCLA, Chemistry & Biochemistry, Los Angeles, CA

Automated synthesis allows a large variety of scales and chemistries.



T Cell Assay Services

JPT Peptide Technologies offers a complete T cell assay portfolio for vaccine target identification, epitope discovery and mapping and neo-epitope qualification. Our comprehensive service ranges from the early project design to its final execution performed by our scientist in state-of-the-art laboratories in Berlin, Germany. You simply send your sample and receive a comprehensive report with all data and data evaluation.

Our Service Includes

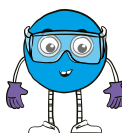
- Assistance with target protein/subunit selection
- Intelligent sequence analysis/bioinformatics
- Peptide library design including the coverage of known sequence variations
- Peptide synthesis, peptide pooling, matrix pool design & plating
- T cell assays (e.g. ELISpot, Flow-cytometry, MHC multimer staining and others)
- Final report/data summary

Available Assays

- Flow Cytometry
- Multimer staining
- Intracellular cytokine staining (ICS)
- B cell ELISpot
- T cell ELISpot

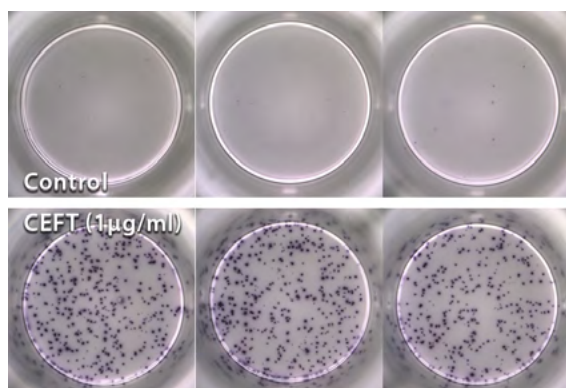
Benefits

- Reliable and robust workflows
- All-in-one service
- Stringent quality control
- Competitive pricing
- In an ELISpot proficiency panel JPT performed in the top 5 within 35 established labs. ISO 9001:2015 certified quality management system



Take a look
and request
a quote!

.....
We offer comprehensive T cell assay services.
JPT is in the top 5 of the best performances in the ELISPOT
proficiency panel comparing assay performance of 38 labs.



Humoral Immunity

Our peptide tools and services to study humoral immunity range from high content and multiwell PepStar Peptide Microarrays and PepSpot Arrays to Peptide ELISA and peptides conjugates. The reliability of these peptide tools allows not only the differential analysis of biological samples for immune profiling and epitope identification but also antibody generation and mimotope optimization at high efficiency.

Let's talk about peptide arrays



Peptide or Protein Arrays

Epitope discovery and analysis of epitope spreading are only possible on peptide level. Additionally, short peptide binders enable development of robust diagnostic tests.



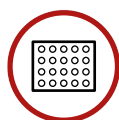
Sample Consumption

Only tiny amounts of your precious samples are needed for incubation. Our microarrays are applicable to serum, blood or cell lysate as well as purified antibodies or proteins.



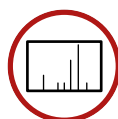
Batch-to-Batch Consistency

A single synthesis batch yields in hundreds of identical microarrays. All peptides have the same flexible orientation due to a direct immobilization to the slide surface.



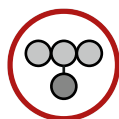
Validation of Identified Seromarkers

Use our Peptide ELISA platform as robust tool to confirm and validate protein-protein interactions such as antibody-epitope binding.



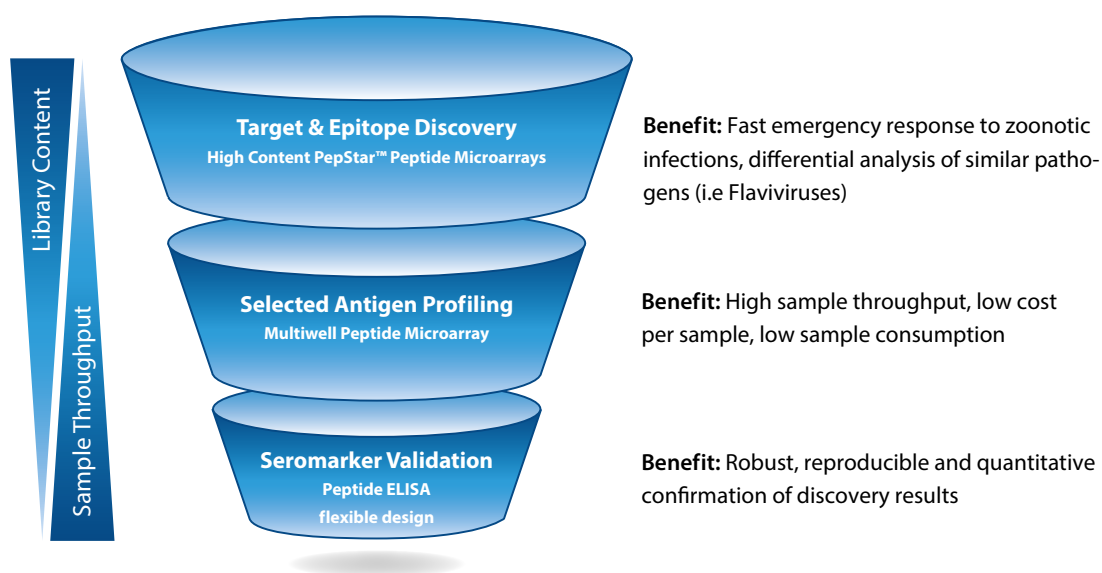
Peptide Purity

Our proprietary PepStar technology includes a purification step for each peptide. We warrant that all peptides are free of deletion sequences that are a source for false positive results.



Sequence Diversity and PTMs

We address sequence diversity as found in cancers and viruses by combining our bioinformatic ULTRA approach with advanced chemistry protocols to assemble peptide libraries and arrays.



PepStar Peptide Microarrays

Our unique PepStar Peptide Microarrays are used for target discovery, immune monitoring, antibody epitope mapping, multiplexed epitope mapping or for detection and validation of protein-protein interactions. They can display up to 21 000 peptides from antigens or whole proteomes from pathogens, tumor associated antigens, or designed peptides.

What are PepStar Peptide Microarrays?

Large numbers (up to 21 000) of peptides are N-terminally attached to glass slides by directed and chemoselective immobilization. Patented high-throughput synthesis of peptides results in high-content peptide arrays. Yield of synthesis is sufficient to generate hundreds of identical slides. Incubation can be performed with proteins and patient samples. Read-out is achieved by fluorescence using validated protocols and commercial equipment.

Applications

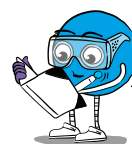
- Target discovery
- Seromarker identification and validation
- Multiplexed immune monitoring in clinical trials
- Elucidation of antigen and epitope spreading during disease progression and therapeutic intervention
- Mapping of immunodominant regions in antigens
- QC/QA of therapeutic biologics
- Vaccine target identification
- Identification and optimization of enzyme substrates

Benefits

- Cost effective provision of hundreds of identical microarrays from a single synthesis batch
- Directed immobilization of purified peptides
- Flexible co-immobilization of controls
- Chemical synthesis and analysis warrant batch- to-batch reproducibility
- High shelf stability
- High assay sensitivity
- Defined posttranslational modifications are possible
- Low consumption of patient materials and proteins

We offer more than 300 different PepStar microarrays off-the shelf!

- Proteins from infections – from BKV to YF, more than 20 organisms
- Tumor Associated Antigens – from CEA to WT1, more than 90 PepStars
- Antigen Collections – from BKV to ZIKV



Check our full and up-to-date list

Is your antigen not available? Do you need a special array layout? We produce custom PepStars tailored to your needs!

Contact our support team at peptide@jpt.com!

Your PepStar microarrays are delivered with detailed QC/QA documentation and application protocol.



“One focus of our group is to decipher the nature of immune responses by identification of biomarkers and indicators of immune protection. With the support of JPT’s high content peptide microarray platform, we created a peptide chip which contains 22 000 individual peptides. This enabled the visualization of the B-cell „signature“ in individuals with TB-infection vs. non-infected individuals. In our hands, JPT’s peptide microarrays turned out to be very robust tools to identify novel peptide based biomarkers in the context of novel diagnostics and vaccine target identification.”

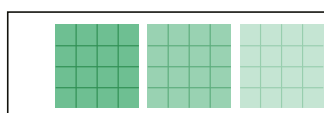
Prof. Markus Maeurer, Karolinska Institute, Solna, Sweden

Selected References

- ➔ “Viral vector delivered immunogen focuses HIV-1 antibody specificity and increases durability of the circulating antibody recall response”
Williams et al., PLOS Pathogens (2023)
- ➔ “A Comparison of the Immunometabolic Effect of Antibiotics and Plant Extracts in a Chicken Macrophage-like Cell Line during a Salmonella Enteritidis Challenge”
Giovagnoni et al., Antibiotics (2023)
- ➔ “Immune profiling of SARS-CoV-2 epitopes in asymptomatic and symptomatic pediatric and adult patients”
Tornesello et al., Journal of Translational Medicine (2023)
- ➔ “Immunotherapy-induced neutralizing antibodies disrupt allergen binding and sustain allergen tolerance in peanut allergy”
LaHood et al., Journal of Clinical Investigation (2023)
- ➔ “Combination of Experimental and Bioinformatic Approaches for Identification of Immunologically Relevant Protein–Peptide Interactions”
Debeljak et al., Biomolecules (2023)
- ➔ “Linear epitope mapping of the humoral response against SARS-CoV-2 in two independent African cohorts”
Vigan-Womas et al., Scientific Reports (2023)

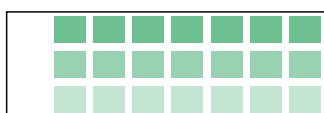
Peptide Microarrays

High-Density PepStar Microarray
6912 peptides in 3 copies per slide



➔ 1 sample

Multiwell 7-sample PepStar Microarray
564 peptides in 7 x 3 miniarrays per slide



➔ 7 samples

Multiwell 21-sample PepStar Microarray
188 peptides in 21 miniarrays per slide
(each with 3 copies per peptide)



➔ 21 samples

.....
The PepStar Microarray layout depends on the number of peptides and can be adjusted to your needs.
.....

Microarray & ELISA Assay Services

We provide a comprehensive and modular seromarker and antibody profiling workflow ranging from high resolution epitope discovery and verification of identified epitopes by large sample cohorts to the validation of results using robust and well established assay systems. These three assay modules can be combined or utilized individually.

Workflow & Applications

- **Module I – Discovery:** High resolution epitope discovery (selection of relevant peptides from thousands of candidate peptides)
- **Module II – Verification:** selective antigen profiling (verification of candidate peptides for a significant number of samples)
- **Module III – Validation:** Marker validation (validation of peptides in secondary assay)

Book modules individually or combine them as needed.

Benefits

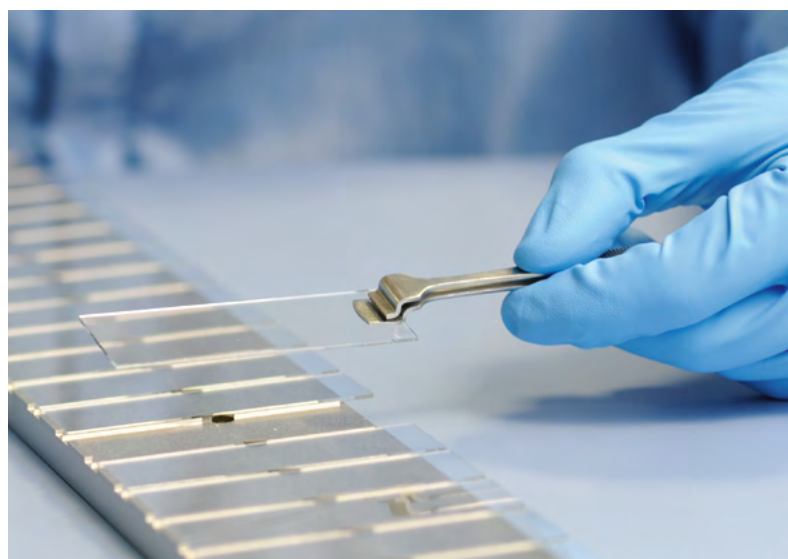
- Modular workflow allows efficient and tailored planning of projects
- All processes controlled, validated and ISO 9001:2015 regulated for highest quality
- Each module optimized for specific purpose
- Experienced and dedicated team of scientists
- Assays compatible with antibodies, sera, whole blood and other fluids that contain antibodies

Our Service Includes

- Finding the optimal strategy for your project
- Help to design peptide sequences
- Production of PepStar high content peptide microarrays, PepStar multiwell peptide microarrays and/or peptide ELISA plates
- Screening and control experiments using your samples
- JPT's biologists and computer scientists will perform data evaluation and analysis

Our Reporting Includes

- Experiment description
- Data evaluation and analysis
- Data visualisation
- Description of results
- Data file with raw-data used
- Reporting format can be adjusted to your needs

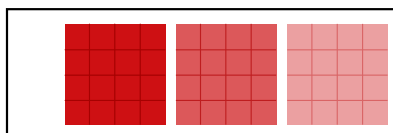


Save time and money by making use of our dedicated and experienced staff and state of the art equipment.

	MULTIPLEXED EPITOPE DISCOVERY	SELECTIVE ANTIGEN PROFILING	MARKER VALIDATION
Assay Format	High content peptide microarray	Multiwell peptide microarray	Peptide ELISA
No. of Peptides	Up to 6912 peptides in triplicates per sample	Up to 192 peptides in triplicates per sample	Up to 96 peptides per plate
No. of Samples	1 sample per slide	21 samples per slide	Up to 96 samples per plate
Principle	Large number of peptides tested against a limited number of samples	Selected peptides tested against a large number of samples	Flexible for low numbers of peptides & samples
Advantages	Low cost per peptide, high peptide throughput	Low cost per sample, high sample throughput	Economic & robust assay
Applications	Identification of relevant epitopes from thousands of candidate peptides	Verification of candidate peptides using a larger number of samples	Validation of epitopes in secondary assay
Sample consumption	200µl/microarray (1µg/ml antibody or serum 1:200)	100µl/microarray (1µg/ml antibody or serum 1:200)	100µl/vial (1µg/ml antibody or serum 1:200)
Batch Size	1000 identical microarrays from 1 synthesis batch	45 identical microarrays from 1 synthesis batch	200 ELISA vials coated from 1 synthesis batch

Peptide Microarray

High Content:
6912 peptides in 3 copies/sample



→ Multiplexed Epitope Discovery

Peptide Microarray

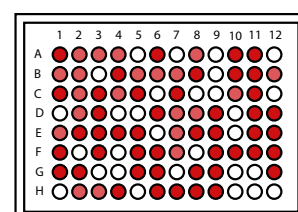
Multiwell:
192 peptides in 3 copies/21 samples



→ Selective Antigen Profiling

Peptide ELISA

1-96 peptides/samples



→ Marker Validation

The three modules of our service vary in complexity and can be used individually or combined according to your project plans.

Peptide ELISA

Enzyme-linked immunosorbent assay (ELISA) is a common analytical and highly sensitive immunological assay classically performed with proteins. Peptide ELISA is of additional value, because it enables analysis at the amino acid sequence level, e.g. mapping of epitopes or delineation of protein interaction sites.

What is Peptide ELISA?

Peptide ELISA is an economic and tailored ELISA platform. Peptides are synthesized according to your specifications and coated onto ELISA plates. It is a very flexible assay as you can choose the peptide sequences, number and purity of the peptides and plate format.

Applications

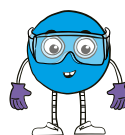
- Antibody epitope mapping
- Immune profiling
- Determination of antibody titers
- Analysis of protein-protein interactions
- Validation of microarray results

Benefits

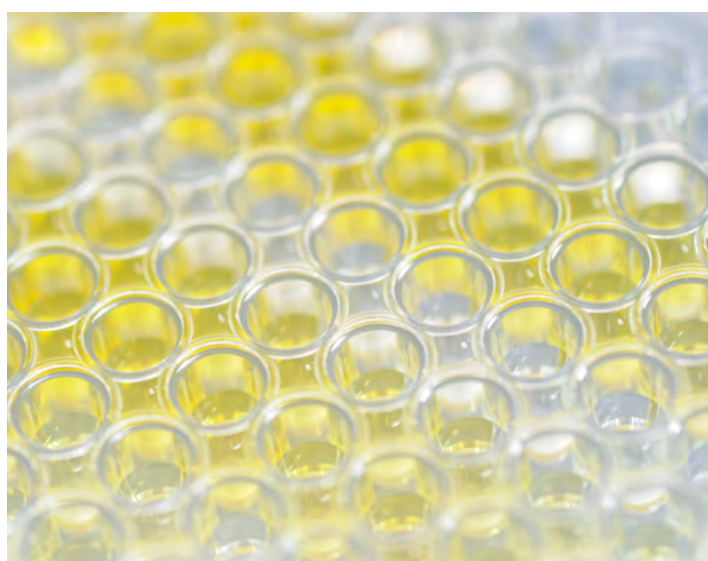
- High batch-to-batch reproducibility
- Economic production of tailored ELISA plates
- Easy-to-use and compatible with standard ELISA protocols and equipment
- Generation of quantitative results
- High sensitivity
- Directed immobilization of purified peptides for reproducible results

Selected References

- ➔ "Identification of Novel Antiacetylated Vimentin Antibodies in Patients with Early Inflammatory Arthritis"
Juarez et al., Ann Rheum Dis (2016)
- ➔ "Evaluating the Efficacy of Aluminium Phosphate Formulated L2 Based HPV Vaccine"
Lakshmikanth et al., Asian Journal of Pharmaceutical and Clinical Research (2015)
- ➔ "Development of β -Lactoglobulin-Specific Chimeric Human IgE Monoclonal Antibodies for In Vitro Safety Assessment of Whey Hydrolysates"
Knipping et al., PLoS One (2014)



Check our different
ELISA options



JPT offers reliable and sensitive Peptide ELISA plates tailored to your needs or as pre-made catalog product.

PepSpots Peptide Arrays

Your customized membrane based peptide array could display peptide scans through antigens, random peptides, positional, alanine or D-amino acid scans or truncation libraries.

What are PepSpots?

Peptides are synthesized on a cellulose membrane, c-terminally attached via a flexible linker. The membrane can be used directly for incubation with antibodies or other proteins and read-out via chemiluminescence. Membranes are delivered with a detailed application protocol.

Applications

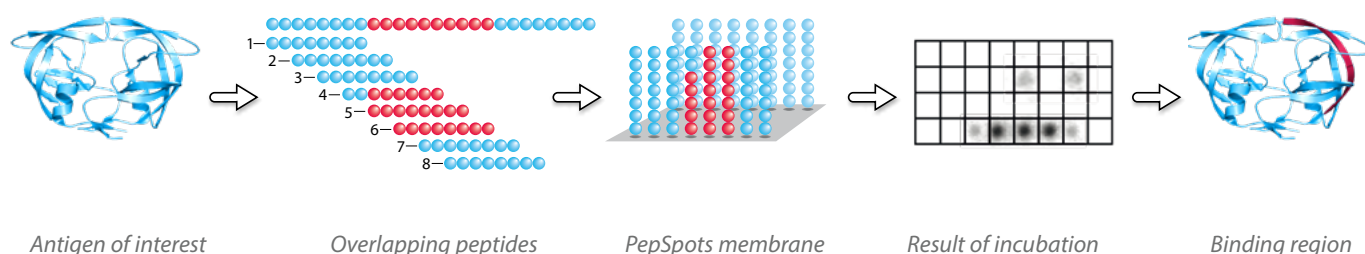
- Antibody epitope mapping and characterization
- Characterization of protein-protein interactions
- Systematic optimization of peptide lead structures

Benefits

- Standard equipment and protocols are applicable
- Rapid, economical, and flexible synthesis of any set of peptides
- Hydrophilic cellulose membranes minimize unspecific interactions

Selected References

- ➔ "Linear epitope mapping of the humoral response against SARS-CoV-2 in two independent African cohorts"
Vigan-Womas et al., Scientific Reports (2023)
- ➔ "Human antibody profiling technologies for autoimmune disease"
Carlton et al., Immunologic Research (2023)
- ➔ "A Group of Infection-Enhancing and Focus Size-Reducing Monoclonal Antibodies Recognized an 'a and c' Strands Epitope in the pr Domain of Dengue Virus prM"
Keelapang et al., Virus Research (2022)
- ➔ "Mechanistic basis of the increased methylation activity of the SETD2 protein lysine methyltransferase towards a designed super-substrate peptide"
Schnee et al., Communications Chemistry (2022)
- ➔ "Mass spectrometry-based draft of the mouse proteome"
Giansanti et al., Nature Methods (2022)
- ➔ "Immunoinformatic Epitope Prediction to Select Monoclonal Antibodies for Phl p 1 Quantification"
Azahara González-Ruiz et al., Mol Immunology (2022)



For a typical order we synthesize overlapping peptides of your protein of interest on cellulose membranes. Resulting PepSpots membranes can be incubated with your sample and binding region detected by chemiluminescence read-out.

BioTides Biotinylated Peptides

Biotinylated peptides for your biomedical assays using streptavidin coated beads, membranes, glass slides or microtiter plates.

What are BioTides?

BioTides are custom synthesized inexpensive sets of small scale biotinylated peptides. Thousands of BioTides are available within days.

- Amounts of 50 – 250 nmol per peptide
- Peptide length up to 20 aa
- Ready-to-use soluble peptides in 96- or 384-well plates delivered freeze dried

Selected References

- ➔ *"Cross-neutralizing protection of vaginal and oral mucosa from HPV challenge by vaccination in a mouse model"*
Sanders et al., Vaccines (2023)
- ➔ *"Immunotherapy-induced neutralizing antibodies disrupt allergen binding and sustain allergen tolerance in peanut allergy"*
LaHood et al., Journal of Clinical Investigation (2023)
- ➔ *"Functional Analysis of Human and Feline Coronavirus Cross-Reactive Antibodies Directed Against the SARS-CoV-2 Fusion Peptide"*
Vanderheijden et al., Frontiers in Immunology (2022)

Applications

- Identification and optimization of kinase-, phosphatase-, acetyltransferase- and histone deacetylase-substrates via standard screening systems (AlphaScreen, FlashPlates, SPA-Beads, Luminex and many more)
- Mapping of protein/protein interaction sites
- Peptide ELISA assays
- Production of peptide microarrays
- Loading of columns for affinity chromatography

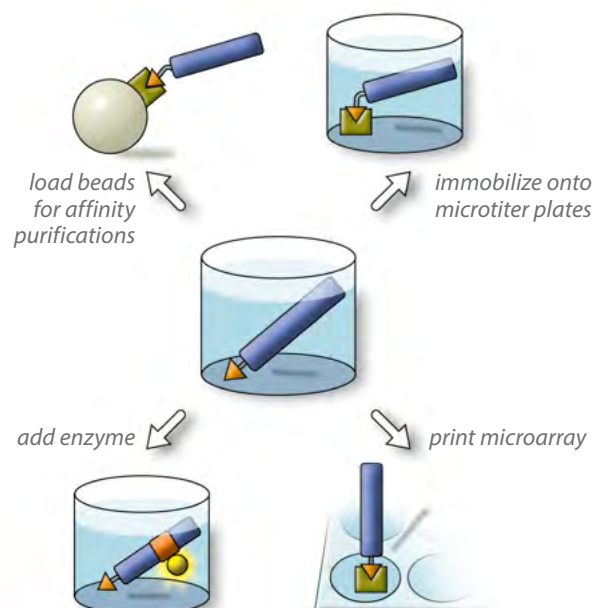
Benefits

- Thousands of unpurified biotinylated peptides for screening and peptide array production
- Unmatched turnaround times (10 000 peptides per week!)
- Delivery in ready-to-use microtiter plates
- Lowest price in the industry due to patented technology
- Complete QC (LC-MS, MALDI etc.) and aliquotation service available

Your BioTides will be delivered in 96-well plates with detailed documentation and QC/QA report.



Use of BioTides for binding and enzymatic assays.



Bioinformatics & Cheminformatics

With our long term experience in Bioinformatics, Computational Chemistry and Modeling we are able to support your research projects at all stages. We offer a unique know-how and expertise as part of our services and in R&D collaborations focusing on peptide hit discovery and optimization.

Capabilities

- Library design based on all available and relevant data sources (sequence, structure, function, homology, literature, ligands, databases)
- Evaluation of experimental data (medium and high-throughput assays)
- Management of complex data sets
- Presentation of complex data sets
- Conversion of structure, sequence and other data to different formats
- Support for compound logistics
- Supply of compound data in any format (sequence or structure)
- Generation of homology models for peptide selection
- Prediction and modelling of data
- Scaffold design for native-like presentation of peptides
- Management and integration of data from different sources
- Customized data presentation

Benefits

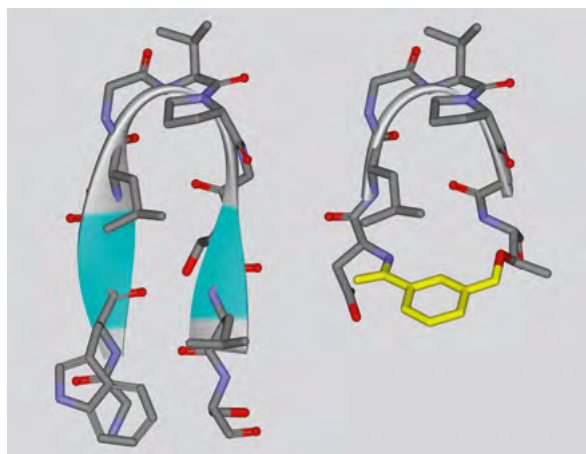
- Long-term track record on the discovery and development of peptides in immunotherapy, drug discovery and diagnostic development
- State of the art prediction, data interpretation and data mining algorithms and software paired with chemical and biological know how
- Expertise available as a fee-for-service or in collaborative partnerships

Service Specifications

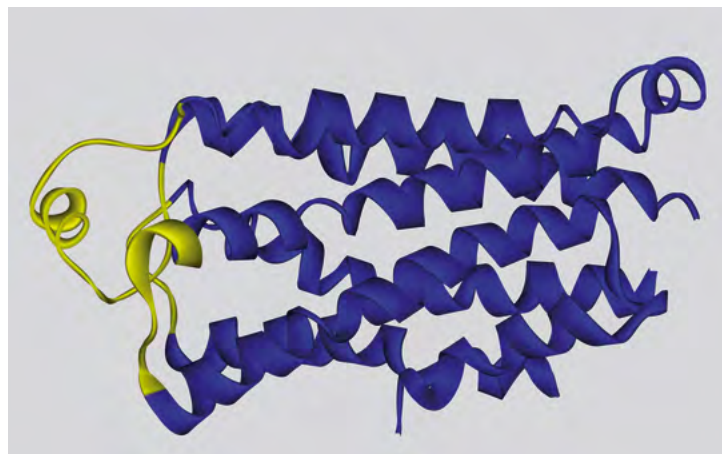
- Detailed discussion of your project and definition of a suitable strategy based on scientific feasibility and experience
- Receive project proposal on how our bio- and cheminformatic expertise can support your project
- Obtain detailed and comprehensive service reports

Discuss your project directly with our computer scientists. Contact us at peptide@jpt.com!

X-ray loop structure (left) and model (right) stabilized by scaffold.



Use of homology model for the selection of cytosolic loop peptides for a GPCR (MSH).





We are here for you!

Do you have questions about our products? Can we help you select the best peptide specifications? Please contact our customer support, our technical support teams in Europe and North America or a distributor in your country.

Customer Support

Our customer support team has years of scientific experience, service-oriented skills, and responds quickly. Please do not hesitate to contact us for information. We also very much welcome your feedback and comments.

T: +49-30-6392-7878

peptide@jpt.com



Technical Support Europe

Do you have a question about using peptides for a specific application? Would you like to discuss a project or peptide specifications for your project? We are here to assist you in the various steps of your project. We speak English, French and German.

Dr. Michael Drosch (right)

T: +49-30-322980-7830

Gregory Hansen, PhD (left)

T: +49-30-322980-7632

peptide@jpt.com



Technical Support North America

We can assist you not only with the sales process, but also with technical support based on our experience in peptide science and applications such as project development, and experimental design. We speak English, French and Spanish.

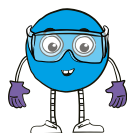
Aaron Castro, PhD (right)

Aude-Marie Alem, MS (left)

T: 1.888.JPT.COM0 (1.888.578.2660)

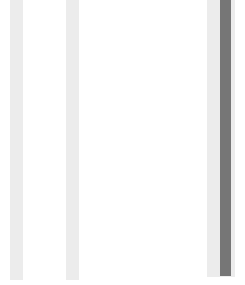
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❖ We are the Peptide Experts



We pride ourselves on our competent service and swift response. Please do not hesitate to contact us for more information. We also welcome your feedback and comments.



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