

# RESEARCH CHEMICALS BACHEM

LEADING PARTNER IN TIDES

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With close to 50 years of proven success in peptide manufacturing, Bachem continues to be the leader in the peptide industry.

We offer a large selection of research peptides from stock. Our distribution centers in the US and in Europe allow fast delivery worldwide. With a track record in custom synthesis projects, we are a partner to our clients as a trusted supplier of high quality research peptides and amino acids.

# RESEARCH CHEMICALS

## What We Do

Bachem supports researchers all around the world with its comprehensive portfolio centered around amino acid derivatives and peptides. We offer support at every step of the drug discovery process - from the first reaction in the lab to the large scale manufacture of an established API (Fig.1). Bachem produces peptides as well as small molecule APIs as drug substances under GMP (Good Manufacturing Practice) conditions for a large number of partners in the pharmaceutical industry.

## Catalog Products

Our catalog products are sold from stock in various pack sizes or in larger quantities. Most of them are manufactured in St. Helens, UK or Bubendorf, Switzerland. They can be purchased via our Online Shop. Catalog products may only be used for laboratory and research purposes.

They must not be used in humans.

The products of the main catalog are divided into two categories. The section "Amino Acids and Biochemicals" contains amino acid derivatives and products for the synthesis of peptides as well as a plurality of biochemicals. These products are mainly ordered by chemists, but also serve customers involved in biological and medical research. The section "Peptides" includes all peptides and small proteins and is dedicated mainly to life sciences and biomedical research.

## Custom Synthesis

In addition to the research grade products listed in our catalog and available from stock, Bachem offers an efficient and high quality custom synthesis service for peptides and amino acid derivatives. Our peptide chemists can prepare a wide range of compounds according to your specifications.



**Fig. 1:**  
The Bachem 360°  
business model.

# CATALOG PRODUCTS

## IMPRESSIVE NUMBER

Our catalog offering is impressive and probably the largest in the world. The portfolio is tuned to fulfill the needs of modern scientists in fields, such as chemistry, biology and medicine. For the sake of shortness, only examples of our offering can be introduced here. For more information, please visit our Online Shop. Needless to say, that all products made by Bachem fulfill the highest standards in quality and product reliability.

### Alzheimer's Disease Peptides

Alzheimer's disease is one of the most complex and complicated diseases researchers have ever studied. US National Institutes of Health reports over 1500 current or completed clinical trials to evaluate various treatments in Alzheimer's disease. The diverse array of possible aggregation states makes working with Amyloid  $\beta$ -Peptides very challenging but extremely promising at the same time. We have more than 260 Alzheimer's Disease related products in our catalog.

### Antimicrobial Peptides

Ribosomally synthesized antimicrobial peptides (AMPs) constitute a structurally diverse group of molecules found virtually in all organisms. Most antimicrobial peptides contain less than 100 amino acid residues, have a net positive charge, and are membrane active. They are major players in the innate immune defense but can also have roles in processes as chemokine induction,

chemotaxis, inflammation, and wound healing. In addition to their antimicrobial effects, many of them show antiviral and antineoplastic activities. We offer more than 70 antimicrobial and antiviral peptides.

### Peptides for Cancer Research

In recent years, interest has gained for peptides in oncology as markers, vaccines, diagnostics, and drugs. Our offer of peptides is completed by a choice of low-molecular compounds such as lipids and amino acid derivatives used in cancer research. We have more than 250 products for cancer research available from stock.

### Cell-permeable Peptides (CPP)

Cell-permeable peptides (CPPs) are short peptides able to pass the cell membrane. CPPs have found use for transporting cargo molecules such as fluorophores, drugs, nucleic acids or proteins into cells. Typically, CPPs contain a large proportion of positively charged amino acids,

especially arginine, or an alternating sequence of charged and non-polar residues. We have more than 20 cell-permeable peptides in our portfolio.

### Diabetes Peptides

According to data from the International Diabetes Federation, more than 422 million people around the world suffer from diabetes mellitus, a chronic metabolic disorder characterized by hyperglycemia. Diabetes mellitus can be divided into two main types. The absolute lack of insulin is the particular disorder in type 1 diabetes. Type 2 diabetes is mainly characterized by the inability of cells to respond to insulin. We offer more than 100 diabetes peptides.

### Amino Acid Derivatives, Resins, Linkers & Reagents

Bachem offers more than 2600 different amino acids and biochemicals, reagents and linkers, loaded resins and base resins for peptide synthesis from stock. In addition, we offer proteinogenic amino acids, unusual amino acids and derivatives thereof. The selection ranges from standard Fmoc and Boc amino acids for peptide synthesis to novel and unique protected building blocks offered exclusively by Bachem. Our products can be used for solid and liquid phase peptide synthesis (SPPS and LPPS) and as chiral educts in organic synthesis. Amongst other non-peptidic biochemicals, a wide range of detergents, lipids and phospholipids, indigogenic substrates and platelet-activating factor (PAF) and analogs can be purchased. Some of these compounds are offered exclusively by Bachem.



# CATALOG PRODUCTS BY APPLICATION

Adhesion Molecules &  
Extracellular Matrix Proteins

Alzheimer's Disease

Angiogenesis

Antigen-presenting Cells

Antimicrobial & Antiviral  
Peptides

Apoptosis & Necrosis

Biotinylated Peptides

Cancer Research

Cardiovascular System &  
Diseases

Cell Culture

Cell-permeable Peptides

Cosmetic Peptides &  
Dermatology

Cytokines/Chemokines &  
their Receptors

Diabetes

Food Research & Nutrition

Gastrointestinal Research

Growth Factors

Hematology

Histone Peptides

Immunomodulating Agents

Infectious Disease

Inflammation Research

Ion Channel Modulating  
Agents

Multiple Sclerosis

Nitric Oxide Research

Obesity Research

Opioid Research

Osteoporosis Research

Parkinson's Disease

Pituitary & Hypothalamic  
Hormones

Protein-Tyrosine Kinases

Regenerative Medicine

Reproductive Medicine

Tau Peptides

Veterinary Medicine

Virology

# VISIT OUR ONLINE SHOP



## THE LARGEST SHOP OF PEPTIDES

shop.bachem.com

### Benefits

It is our pleasure to introduce our new online shop with enhanced functionality for order placement and quote generation.

You will benefit from savings by placing your orders online and the discount program for catalog products is now even more attractive than before.

And we are really quick: Your order usually is shipped within one to two business days out of our distribution centers in the USA and in Europe.

### Multiple Discounts

In our Online Shop, discounts can be applied and accumulated. Please benefit from our

- Online Order Discount (7%)
- Multiple Vial Discount
  - 2 vials (5%)
  - 3 to 5 vials (10%)
  - 6 to 9 vials (15%)
  - 10 to 30 vials (20%)
  - ≥ 31 vials (25%)

Moreover, we offer discounts for large quantities of a product (bulk). The minimum amount required for

bulk discount is five fold the largest pack.

### Instant Quote Generation

Our newest feature allows you to compile your individual quotations, including all applicable discounts. Create and convert quotations in our Online Shop with just a few clicks!

### Quick Access to Information

A lot of valuable information is presented alongside with the products and can be downloaded or opened as links. For example, you will find

- product availability
- lot-specific analytical data sheets (ADS)
- safety data sheets (MSDS; according to 1907/2006/EC, Article 31)
- product-specific literature references
- links to related products.

Furthermore, you can take advantage from a lot of additional product data such as CAS Registry Number, one letter code, areas of scientific interest and many more.

If you require further support, please do not hesitate to chat with us online via our chat box.

### Enter Product-Related Search Terms

The text search in our Online Shop is reliable and quick. Not only product names can be found, but also any other stored information, and the latter is regularly updated. You can find your product by searching

- product names
- sequences (one letter or three letter code)
- synonyms or key words
- CAS numbers
- product numbers
- molecular formulas.

### Shop by Filters

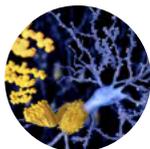
You can filter the search results for

- new products
- dye label
- product families & subfamilies
- salt forms
- molecular mass (using a selector)
- source (synthetic or recombinant).

# EASILY FIND WHAT YOU NEED

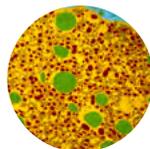
## Browse Main Categories

Our Online Shop is sub-divided into four main categories.



### APPLICATION

The products are clustered by specific areas of scientific interest. If you open for example the *Application* Alzheimer's Disease, Cancer Research or Cell-permeable Peptides, you will find all of our products directly related to these fields. The *Application* might be further divided into sub-areas, for example Tau Peptides in the *Application* Alzheimer's Disease.



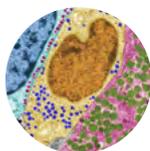
### INHIBITORS AND SUBSTRATES

You will find a wide range of enzymes, for which we offer inhibitors and substrates right from stock. The products are sub-divided into inhibitors and substrates, respectively, for each specific enzyme.



### AMINO ACIDS AND BIOCHEMICALS

This category contains all of our non-peptide products, such as amino acids, amino acid derivatives, resins, linkers and biochemicals. This is also regardless of whether they are already contained in *Application* or *Inhibitors and Substrates*. You will also find a number of very special products like the  $\alpha$ -Methyl Amino Acids "by Dottikon" as well as products, for which Bachem is the exclusive supplier.



### PEPTIDES

This category contains all peptides, offered in our catalog, regardless of whether they are already contained in *Application* or *Inhibitors and Substrates*. The peptides cover an impressive range of research fields and are sub-divided into families and sub-families, oriented on the type of peptide.

## ONLINE SHOP



SHOP.BACHEM.COM



ST. HELENS (UK)

VISTA (CA)

TORRANCE (CA)

# GLOBAL BUSINESS

Bachem facilities are located in Switzerland, UK and the USA.

All cGMP manufacturing sites are inspected by the FDA and national authorities.

■ GMP SITES



■ BUBENDORF (CH)  
■ VIONNAZ (CH)

TOKYO (JP) ■



# CUSTOM SYNTHESIS

- Center of excellence for catalog and custom peptides in St. Helens, UK
- Preferred partner for diagnostics companies worldwide with ISO 13485 certified manufacturing site in the United Kingdom
- Global peptide partner for pharmaceutical, biotechnology and cosmetic companies as well as academia
- Multiple sites with full range of capacity (mg - kg)

# CUSTOM SYNTHESIS

## Our Service

Although Bachem offers a large number of different research grade biologically active peptides, biochemicals, substrates and inhibitors from stock, your project may require a peptide not listed in our catalog. By choosing Bachem as your custom synthesis partner you will have access to our knowledge base of close to 50 years experience in designing and synthesizing novel peptides and related organic compounds according to customer requirements. We can supply you with

- research to commercial scale quantities, from milligrams to kilograms and tons
- non-GMP to GMP quality
- short peptides to small synthetic proteins
- peptides to peptidomimetics to complex organic molecules.

In addition, we can offer an “Express Manufacturing” service for urgent orders. Your project is important to us. Our dedicated and experienced technical staff and our state-of-the-art facilities are ready to serve you at a moment’s notice.

## Expertise

Our peptide chemists can prepare compounds according to your specifications. We are proficient in solution phase peptide synthesis and solid phase peptide synthesis, using Fmoc or Boc chemistries. We are experts in producing fluorescently labeled peptides, peptides with multiple disulfide bridges, peptides containing stable isotopes, and long and difficult peptides (please see next pages). Other specialties include multi-step organic transformations and peptidomimetic molecules.

As a pioneer in the peptide industry, Bachem has the expertise you can rely on to produce from simple peptides to most complex and challenging molecules.

## Quality

Bachem is committed to using synthesis and purification strategies that yield products of the quality and purity you require. Our standard analytical package typically

includes mass spectrometric analysis and determination of purity (by RP-HPLC). Additional analytics, such as the determination of the peptide content, are offered as well. Bachem sets industry standards for high quality custom peptides.

## Efficient Service

Our proficient peptide synthesis techniques in combination with high capacity and state-of-the-art production equipment allow short delivery times without compromising quality. You will get technical support with the design of your peptides and complex organic molecules.

At Bachem you will have additional privileges: You have your own contact person from our specialized custom synthesis team with a strong scientific background (M.Sc. or Ph.D.).

Together you will not only design the molecule you need, but also identify which services are best suited to your requirements. We offer additional features, such as custom synthetic procedures, traceability and change control as well as customized vialing of your product prior to delivery. If you need a custom peptide, please challenge us with your ideas and take advantage of our expertise!

## Reliable Supplier

From discovery through development and commercialization, Bachem is your dependable partner. Our expert staff will evaluate your project and consult closely with you to ensure that the manufacturing of your product meets your specifications. We are fully prepared to supply you with your custom peptide how you need it and when you need it - be it from our center of excellence for research chemicals or from one of our fully qualified GMP facilities. Multiple facilities with overlapping capacity ensure that your vital projects are completed on schedule.

Bachem has longstanding supply agreements with numerous partners and we invite you to become the next one!

# DYE LABELED PEPTIDES AND AMINO ACIDS

**BACHEM DYE SELECTOR**  
Find your fluorescent labeled peptide  
and amino acid

Color range

280 nm

750 nm

## Labeled Peptides and Amino Acids

Fluorescently labelled peptides are a powerful tool in the elucidation of biochemical processes.

In order to support researchers worldwide, Bachem offers a large amount of dye labelled products as part of its catalog portfolio. Additionally, our custom synthesis service offers labelling with various dyes as a standard modification.

Our dye selector is the best way to browse the comprehensive range of fluorescently labelled products at Bachem.

## A new generation of dyes

The requirements on fluorescent probes and quenchers are manifold and high. Examples are an efficient excitation, light absorption and high yield of emission by the donor label (dye) as well as a good energy absorption by the acceptor (quencher).

This is particularly important under physiological conditions, where often only low dye concentrations can be used. Furthermore, the dyes should have a high photo-stability, in order to minimize bleaching caused by exposure with high light intensities, used for example in microscopy.

All these features are available with Tide Fluor™ dyes and the corresponding Tide Quenchers™, from our newest partner, AAT Bioquest, Inc. They combine the cost advantages of classic fluorescent tags with the performance of proprietary dyes, or even outperform the latter in the relevant characteristics.

## Tide Fluor™ Dyes

- efficient absorption of excitation light from common light sources
- significantly stronger fluorescence, than most conventional or proprietary dyes
- significantly higher photo-stability, than most conventional or proprietary dyes

Tide Fluor™ dyes and Tide Quencher™ dye labeled peptides are available as

- carboxylic acids
- maleimido-, azido- and alkyne-derivatives
- active esters (NHS)
- amines.

## Tide Quencher™

For optimum results in FRET analysis, the Tide Fluor™ dyes should be combined with the proprietary quenchers of the Tide Quencher™ range. The emission spectra of the Tide Fluor™ dyes have a great overlap with the excitation spectra of the recommended Tide Quencher™ acceptors, leading to an efficient quenching process.

Also in comparison to the majority of classic and proprietary quenchers, Tide Quencher™ labels have

- significantly higher absorption strength
- superior quenching efficiency.

Like Tide Fluor™ dyes, Tide Quencher™ labels are available with improved water solubility.

# TIDE FLUOR™ DYES AT BACHEM

Bachem has identified Tide Fluor™ dyes and Tide Quencher™ as its fluorescent labels of choice for high performance applications. These compounds cover the whole range of visible light as well as parts of the ultraviolet and near infrared region (see Table below).

Tide Fluor™ Dye	Absorption (TF)	Emission	$\epsilon$ (M <sup>-1</sup> cm <sup>-1</sup> ) *	QY**	Optimum Tide Quencher™	Absorption (TQ)
Tide Fluor™ 1	345 nm	442 nm	20,000	0.95	Tide Quencher™ 1	~490 nm
Tide Fluor™ 2	500 nm	527 nm	75,000	0.90	Tide Quencher™ 2	~520 nm
Tide Fluor™ 2 WS	495 nm	518 nm	75,000	0.90	Tide Quencher™ 2 WS	~520 nm
Tide Fluor™ 3	555 nm	584 nm	78,000	0.85	Tide Quencher™ 3	~570 nm
Tide Fluor™ 3 WS	555 nm	565 nm	150,000	0.10***	Tide Quencher™ 3 WS	~570 nm
Tide Fluor™ 4	590 nm	618 nm	90,000	0.91	Tide Quencher™ 4 WS	~610 nm
Tide Fluor™ 5 WS	649 nm	664 nm	250,000	0.25	Tide Quencher™ 5 WS	~670 nm
Tide Fluor™ 6 WS	676 nm	695 nm	220,000	0.18	Tide Quencher™ 6 WS	~704 nm
Tide Fluor™ 7 WS	749 nm	775 nm	275,000	0.12	Tide Quencher™ 7 WS	~763 nm
Tide Fluor™ 8 WS	775 nm	807 nm	250,000	0.08		

\* Extinction coefficient, determined at  $\lambda_{max}$  (absorption maximum). \*\* Quantum yield in aqueous buffer (pH 7.2).  
\*\*\* Fluorescence intensity is significantly increased when coupled to proteins or long peptides.

# TIDE FLUOR™ COMPATIBILITY

Tide Fluor™	Spectral range compatible to
Tide Fluor™ 1	EDANS
Tide Fluor™ 2	Alexa Fluor® 488, FAM and FITC
Tide Fluor™ 2 WS	Alexa Fluor® 488, FAM and FITC
Tide Fluor™ 3	Alexa Fluor® 555 and Cy3
Tide Fluor™ 3 WS	Alexa Fluor® 555 and Cy3
Tide Fluor™ 4	Alexa Fluor® 594, ROX and Texas Red®
Tide Fluor™ 5 WS	Alexa Fluor® 647 and Cy5
Tide Fluor™ 6 WS	Alexa Fluor® 680, Cy5.5 and IRDye® 700
Tide Fluor™ 7 WS	Alexa Fluor® 750, Cy7 and IRDye® 800
Tide Fluor™ 8 WS	IRDye® 800



Bachem offers a growing number of Tide Fluor™ labeled dyes from stock as part of its catalog portfolio. Additionally we offer the labeling of products from our catalog with Tide Fluor™ dyes as part of our custom synthesis service.

For more details on why Bachem chose Tide Fluor™ dyes, please consult our product flyer.

# LARGE SELECTION OF COMMON MODIFICATIONS

- Backbone Modifications
- Branched Peptides
- Cyclic Peptides
- Depsipeptides
- Hydrocarbon-Stapled Peptides
- Lipidation
- Maleimido and Clickable Peptides
- MAP Peptides
- Methylation
- Multiple Disulfide Bond Formation
- N- and C-terminal Modifications
- Non-natural Amino Acids
- Peptidomimetics
- Phosphorylation and Sulfation

Our highly experienced custom synthesis teams with **extensive know-how** in sequence design and modifications will deliver every peptide in the quality you need.



# TECHNICAL LIBRARY

## Benefit from a Wealth of Information

Bachem wants to provide the best possible information and offers a wide range of documentation and practical information on our various products and services. Our FAQ section provides you with answers to numerous questions you may have concerning the world of peptides. You can also download any document from our technical library. The information is updated by our Science Team on a regular basis. Some of the documents are also available in Chinese, Japanese, Spanish or Portuguese language.

## Selection of Documents for Download

The Technical Library at our homepage is divided into document classes.

### *Catalogs and Brochures*

Our catalogs and brochures present peptides for research and products for peptide synthesis, collated by specific topics or applications. You also find information about our offer of generic APIs and related services to the pharma and biotech industries. In addition, you can order our desired print catalogs, which we, after a brief registration of your contact details and affiliation, will send cost-free to you.

### *Product Monographs*

Our Product Monographs are the first choice, if you are searching for profound scientific or technical information towards a certain field or research topic. Almost like a scientific review, the Monographs summarize in a couple of pages basic information and the latest proceedings. The Product Monographs contain regularly updated lists of relevant Bachem products, which help you to find the best-suited peptides, amino acids or biochemicals.

### *Product Flyers*

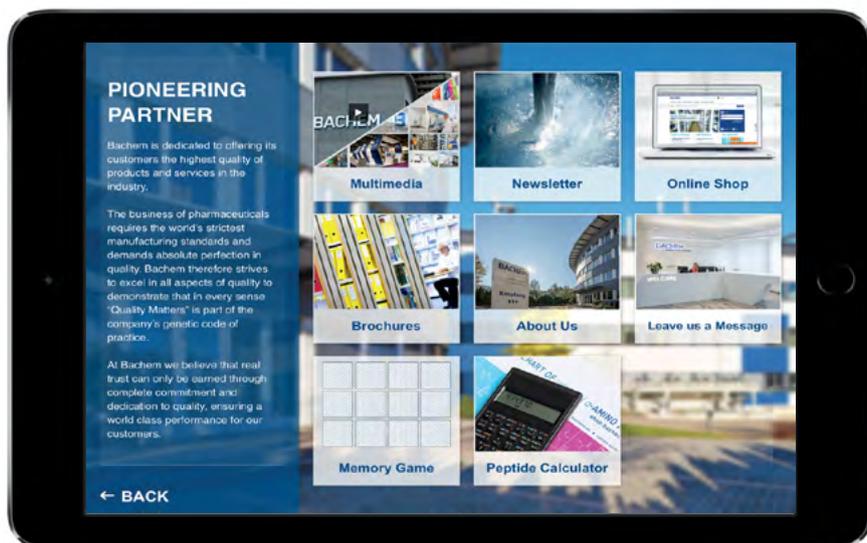
Our Product Flyers typically are dedicated to a particular class or family of products and contain regularly updated product lists. The scientific description can range from a brief product summary to deeper going background information. In addition, you can find very useful overview posters like our Chart of Unusual Amino Acids, Poster of Di- and Tripeptides or Periodic Chart of Amino Acids.

### *Scientific Posters*

In this section, you can download scientific posters from our participations at various meetings.

### *Technical Notes*

Take advantage of lots of useful facts on Bachem products.



## THE BACHEM APP



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All information is compiled to the best of our knowledge.  
We cannot be made liable for any possible errors or misprints.  
Some products may be restricted in certain countries.



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