



aappTec

advanced automated peptide protein technologies

Peptide Synthesizers



aappTec

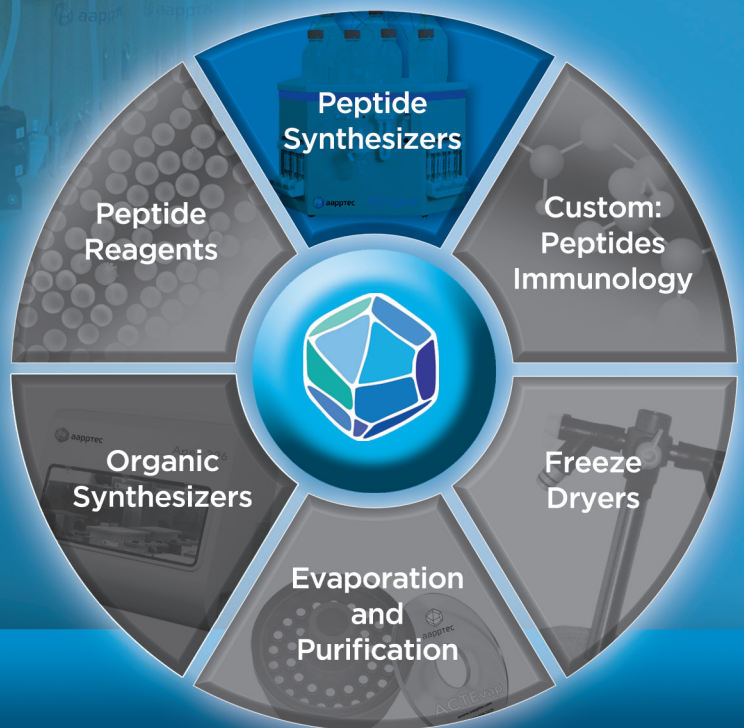
Focus XC

AA6 AA7

MV

AA13

AA14 AA15



F O C U S

Focus Series Peptide Synthesizers



aapptec is well known for its innovation and leadership in automated peptide synthesizers. aapptec technology has been an industry leader for the past 30 years around the world with:

- Research peptide synthesizers
- The 1st mini-pilot scale synthesizer.
- The 1st parallel multiple peptide synthesizer.
- The 1st split-and-combine combinatorial library synthesizer.
- The 1st synthesizer with heating, cooling and sonication.
- The 1st Robotic Peptide Synthesizer.

The Focus XC Series of peptide synthesizers is based upon the very successful Model 90, one of our most popular synthesizers since 1988. The Focus XC series was based on Model 90's user input with modifications. Using our customers' suggestions, the Focus XC is designed to be the premier peptide synthesis instrument.



- Wash, mix, deprotect and empty 6 reactors simultaneously
- Short cycle time

Focus XC (2, 4, 6) (Research Instruments)

The Focus XC research scale instruments are designed to efficiently synthesize 1 to 6 high quality compounds in parallel, yet still compact enough to fit on a laboratory bench. These instruments can prepare peptides in a scale range of 0.05 to 30 mmol depending on the reactor and instrument configuration and resin substitution. The Focus XC instruments are ideal for any research laboratory where efficiency, reliability, and high quality peptide products are important. They are invaluable tools for discovery research, synthetic methods, process development and even production for phase 1 and phase 2 clinical trials.



Focus Xi (Personal Synthesizer)

The Focus Xi is perfect for teaching laboratories or research laboratories with modest peptide needs. It is an affordable, dependable, single-reactor peptide synthesizer that can prepare up to 300 peptides a year. It is very flexible, with options including additional reactors, solvent/reagent lines, amino acid containers, heating/sonication modules and UV detection.

Focus XCII (pNA/DNA/Peptide)

The Focus XCII is designed to meet the demands of continued medical research advancements. The Focus XCII can reliably deliver volumes as low as 200 μ L to support pNA, DNA and RNA synthesis. It can also be used for traditional solid phase peptide chemistry to produce small numbers of high quality peptides in small quantities.

Focus XCIII (Production)

The Focus XCIII is a fully-automated production scale synthesizer small enough to fit on a standard bench top. This instrument is capable of preparing hundreds of grams of peptide in a single synthesis. The Focus XCIII is the perfect instrument for preparing peptides for cGMP and up to 100 grams of peptide production. Options include additional solvent/reagent lines, 8 additional amino acid containers, heating and cooling reactors, and UV detection.

Specifications

Focus XC (2,4,6)

- 2, 4, or 6 Reactors
- Optional Reactor Sizes: 25, 50, 100, 200, 300 or 500mL
- 6 Solvent/Reagent Lines
- 24 Amino Acid Containers option (10mL, 40mL, 90mL or 250mL)
- Measuring and Preactivation Vessel option (15, 45, 90, or 250 mL)
- Optional UV Monitoring, Heating and Cooling
- Nitrogen/Mechanical Mixing

Focus Xi

- 1 Reactor (Optional Sizes: 25, 50, 100, 200, 300 or 500mL)
- 5 Solvent/Reagent Lines (variable bottle sizes)
- 16 Amino Acid Containers (90mL)
- Optional: Up to 24 Amino Acids
- Nitrogen Mixing, Optional Mechanical Mixing
- Optional UV Monitoring, Heating and Cooling.

Focus XCII

- Two Reactors (2-25mL)
- Two 6 Solvent/Reagent Lines (variable bottle sizes)
- 24 Monomer Containers (10-30mL)
- Mechanical and Nitrogen Mixing
- Optional UV Monitoring, Heating and Cooling

Focus XCIII

- 1 Reactor
- Optional Reactor Sizes: 500mL, 1L, 2L, 3L, or 5L
- 6 Solvent/Reagent Lines
- 2 Amino Acid Containers (variable amino acid sizes)
- Optional: Up to 12 Amino Acids
- Optional UV Monitoring, Heating and Cooling
- Nitrogen/Mechanical Mixing



Reaction Vessel Design



The Focus Instrument Series uses interchangeable reactors in sizes ranging from 5mL to 5L allowing for variable synthesis scales depending on the instrument's configuration. The reactors are made of glass for clear observation of the synthesis and easy access to the resin for manual additions or sampling. A durable glass frit ensures that the resin remains intact and in the reactor.

Mixing

The Focus Instrument Series utilizes variable speed wrist-action mixing, nitrogen bubbling, or a combination of both.

Efficient Resin Washing

The unique design of the reaction vessel allows the resin to be washed from the top of the reactor, through the resin, and then to the waste. The shower head spray feature efficiently and completely washes the sides of the reactors from the neck down, ensuring the resin remains in the bottom of the reactor so each bead makes uniform contact with the wash solvent. As an added feature, the user can also choose to wash the resin by delivering solvent to the bottom of the reactor.

Solvent/Reagent Bottles

Configurations of solvent, reagent and amino acids vary throughout the Focus Series models. The user has the option of customizing the configuration they desire.

Heating Option

The Focus Instrument Series has a heating option that allows the reaction vessel to be heated during reactions; the heating module applies heat only during the steps specified by the user, thus eliminating unnecessary heating that can damage heat sensitive sequences or sequence positions.

Moderate heating during coupling has proven to be very beneficial for the synthesis of some peptides. Recently, conventional heating was shown to be as effective as microwaves in peptide synthesis.¹

¹ Bacsa B, Horváti K, Bősze S, Andrae F, Kappe CO J. Org. Chem. 2008, 73, 1532-42



Focus Options

Sonication Option

Sonication has been shown to accelerate some reactions and can also yield products not obtainable by purely thermal activation.² Sonication has proven to disrupt aggregation and accelerate diffusion of reagents into the resin, thus speeding up coupling reactions; particularly useful for difficult couplings. aapptec offers an optional sonication module which applies ultrasound to the reaction vessels at user-specified intervals during synthesis.

² Hickenboth CR, et al. Nature, 2007, 446, 423-7

UV Monitoring Option

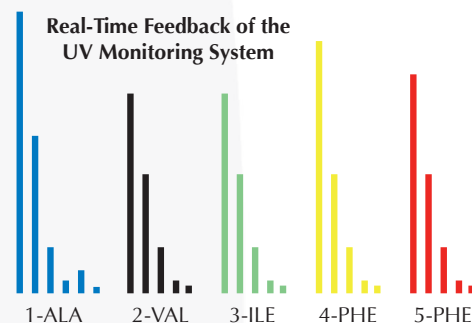
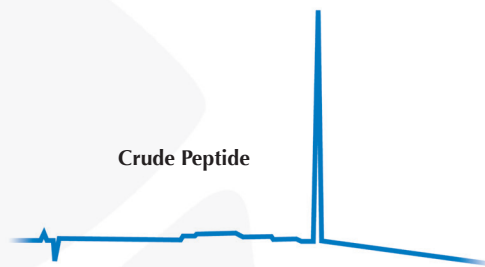
The UV monitoring option identifies difficult deprotection positions in real-time and makes predefined adjustments to the synthesis protocols to optimize deprotection efficiency. This process minimizes deletion peptides that form when deprotection reactions are slow and the intermediate peptide resin is not fully de-protected before couplings. No more failed syntheses due to unexpected slow deprotections.

Amino Acid/Reagent Containers

The Focus Series Instruments are equipped with 16, 24, or 36 amino acid/reagent containers. Each amino acid container can be assigned to a single residue in the peptide sequence or used as stock amino acid reservoirs and accessed multiple times for multiple couplings for one or all peptides. The Focus Instrument has amino acid capacity to prepare six 80 amino acid peptides without interruption.

The Focus Series software allows the user to assign specific amino acids or reagents to each amino acid container as needed for the synthesis. The flexibility of the Focus Series allows for unattended completion of an entire synthesis, regardless of the scale or peptide length.

The Focus Instrument Series can utilize either powder or pre-dissolved amino acids. The amino acid solution can be preactivated within the amino acid vial or a portion of the stock solution can be transferred to the measuring vessel for preactivation. All liquids are transferred under positive nitrogen pressure from a solvent or reagent container maintaining a completely inert atmosphere maintained by nitrogen or argon.



aapptec is the Premier Peptide Source.

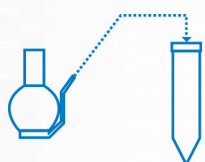
On-Line Cleavage



On-instrument cleavage is a convenient, time-saving means of removing the product from the resin. The Focus Instrument Series can cleave products using any of the common cleavage protocols with the exception of HF based cleavage protocols. Cleavage with TFA, TFMSA, TMSOTF or specialized cleavage reagents can be easily performed on any of our Focus instruments without having to transfer the resin from the reaction vessel.

All scavengers and additives utilized in common cleavage cocktails are compatible with the Focus instruments. Just prepare the cleavage mixture and place it in one of the amino acid/reagent vials and the instrument will automatically agitate the mixture for a length of time specified by the user, then transfer the solution containing the cleaved product to a separate container.

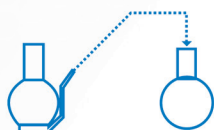
Product cleavage on the Focus instruments is easy and convenient without the losses encountered in transferring product resin from a reaction vessel to a cleavage vessel. The Focus instruments, with their flexibility, ease of use, multiple simultaneous synthesis capability, and convenient on-instrument cleavage, are productivity-enhancing tools suitable for any laboratory.



RV to AA



RV to RV



RV to Flask

Three ways to Transfer Cleavage Product Solution

The solution containing the cleaved product can be transferred by any one of the following ways:

1. It can be collected in a designated amino acid/reagent container.
2. It can be transferred to another reaction vessel for further elaboration.
3. It can be sent to a flask or other container through one of the waste lines. The waste line can be flushed prior to cleavage or one of the waste lines can be dedicated for products only.

Focus Software

Easy-To-Use Software

The Focus Instrument Software has standard pre-loaded Boc and Fmoc protocols that allow any user to prepare high quality peptides. On-screen instructions direct users through every step of the synthesis process with point-and-click commands making operation simple. Experienced users can quickly create custom chemistries, such as special coupling protocols or alternative deprotection methods. The flexibility and versatility of the software makes the Focus Instrument Series the ultimate in peptide synthesizers.

Reliability

The Focus Instrument Series is a highly reliable system which utilizes proven technology. With simple preventive maintenance, your Focus Instrument will provide reliable and continuous service for many years.

Technical Support

All of aapprec's instruments are backed by our unparalleled expertise in peptide chemistry. An experienced and qualified team of technical support personnel, engineers, and application chemists is dedicated to answering all of your questions related to peptide chemistry, instrument operations, or instrument applications.

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- Easy-to-Use Software
- Each amino acid can be assigned separate coupling protocols



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**“Speeds up my work, simple to use,
very good customer service.
I like the Focus XC.”**

– Research Triangle International

**“Easy to use, great flexibility. Great
for scale up and long peptides.
No drawbacks.”**

– University of Nebraska



Focus XC



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advanced automated peptide protein technologies

Spirit of Innovation

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