

PS3TM

Peptide Synthesizer



www.gyrosproteintechnologies.com

GYROS PROTEIN
Technologies

PS3™ Peptide Synthesizer

It's easier than ever to put automated peptide synthesis capacity in your laboratory!

- Three reaction vessels
- Standard or custom programs
- Supports Fmoc and t-Boc chemistries



THREE REACTION VESSELS

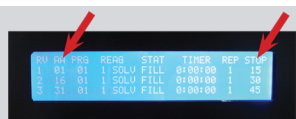
Three reaction vessels let you synthesize up to three completely different peptides sequentially without operator attention. PS3 will perform up to 45 couplings automatically, without reloading or user intervention. Set it up to run overnight or over a weekend, for maximum productivity.

STANDARD OR CUSTOM PROGRAMS

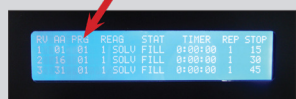
“Plug’n play” simplicity allows you to load vials in sequence and indicate start and stop positions. Specify standard or custom programs for each coupling, and push “RUN”.



Load vials in sequence



Indicate start and stop positions



Specify standard or custom programs for each coupling



Press Run!

SUPPORTS FMOC AND t-BOC CHEMISTRIES

PS3 allows you to use a variety of coupling techniques, including standard reagents like HBTU, DIC, and PyBOP. Fmoc-N-carboxyanhydride and Fmoc-acid fluoride chemistries can be performed without instrument modification. Different chemistries can be mixed in one synthesis.

PS3 can also be used with either Fmoc or t-Boc protected amino acids. Pre-packaged reagents are available for 0.1 and 0.5 mmol synthesis scales. Coupling programs can be customized for special needs.

FLUID DELIVERY

The zero-dead-volume fluid valve system has all PTFE wetted surfaces and just one moving part. A self-diagnostic program and multiple sensors ensure proper performance while a printer provides a permanent record of each synthesis. Fluid transfer and mixing are accomplished under inert atmospheres of nitrogen or argon.

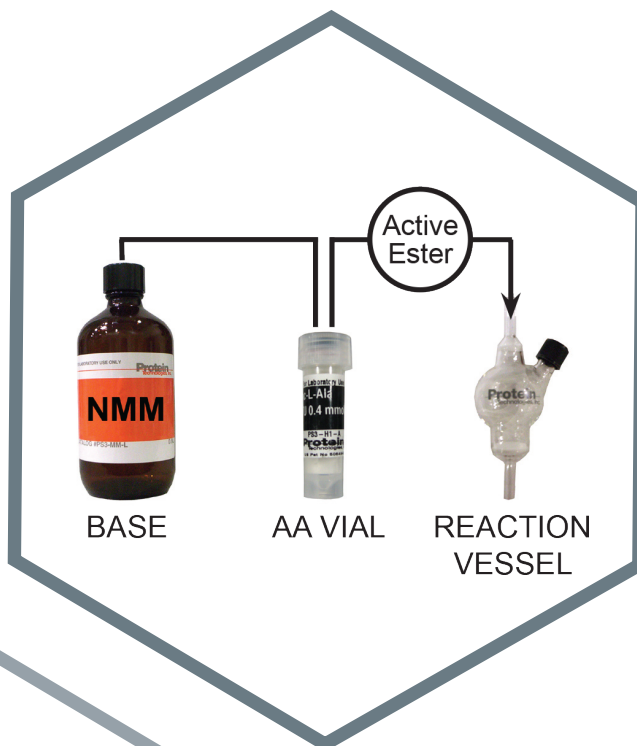
SOFTWARE FEATURES

- Menu-driven software
- Manual operations
- Wash operations
- Printer output records all operations

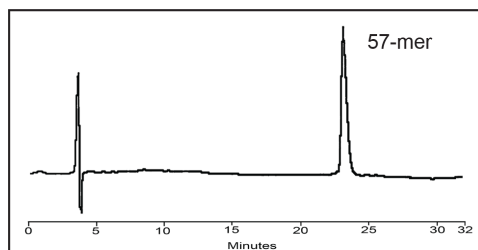
High Quality Performance

HIGHLY EFFICIENT COUPLINGS

An activating agent is pre-packed in vials with the protected amino acids. This dry mixture is shelf stable for years. Upon addition of base solution to the vial, activation takes place immediately. The active ester is transferred rapidly to the reaction vessel, and highly efficient coupling ensues.



UNSURPASSED YIELD AND PURITY



57-mer (PEA small subunit transit peptide) synthesized at 0.1 mmol scale on PS3 using four-fold reagent excess and single 20-minute couplings (Program 3). Purified in one step on a 300A C18 reverse-phase column.

PS3 produces peptides with yields and purity equal to or better than competitive instruments. For example, a 57-mer was synthesized by a core facility on a competitive instrument and in parallel on a PS3. Both syntheses employed HOBt-ester chemistry, single couplings, and standard coupling programs. Purity with PS3 was 44.9% compared to 40% on the competitive instrument. Comparative data for a variety of peptides has shown similar results.

Design Features

HANDLE SPECIAL CHEMISTRY



The flexible design of PS3 allows sophisticated custom approaches to difficult synthetic problems

- Reaction vessel side-arm allows reaction monitoring and special reagent additions
- Stop and restart PS3 at any time during a synthesis
- Operate PS3 manually to perform single step operations

MODIFIABLE PRESET PROGRAMS

There are 6 standard and 9 custom coupling programs. The programs automatically perform all necessary deprotection, coupling and washing steps. Modify coupling, deprotection, wash times and repetitions and save as a custom program. You can assign a different program to each amino acid.

RV	AA	PRG	REAG	STAT	TIMER	REP	STOP
1	01	01	1 SOLV	FILL	0:00:00	1	15
2	16	01	1 SOLV	FILL	0:00:00	1	30
3	31	01	1 SOLV	FILL	0:00:00	1	45

HIGH PRODUCTIVITY

PS3 will do up to 45 couplings automatically, without reloading. With three reaction vessels, PS3 can synthesize three completely different peptides sequentially. Set it up to run overnight, or over a weekend, for maximum productivity!

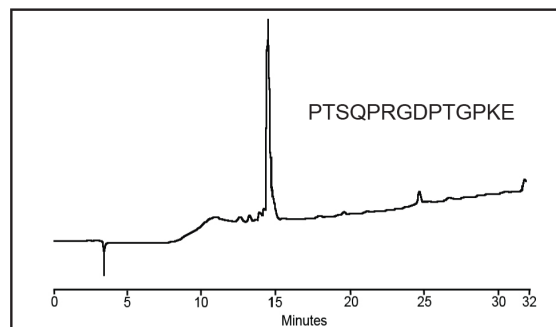
AUTOMATED CYCLE-DEPENDENT VOLUME INCREMENTATION

PS3 was designed to increase its fluid delivery volumes as the peptide grows and the resin volume increases. The timed fluid delivery automatically increases by 1 second every 5 cycles.

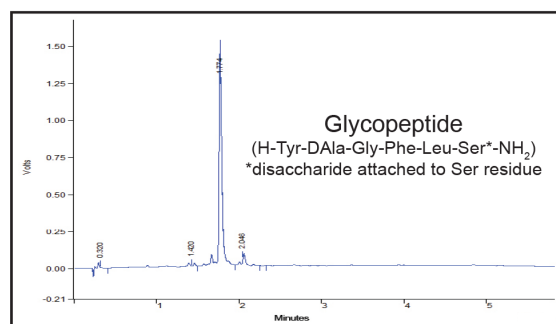
ADAPTABLE

PS3 lets you use other coupling techniques.

For example, Fmoc-N-carboxyanhydride and Fmoc-acid fluoride chemistries can be performed without instrument modification. Different chemistries can also be mixed in one synthesis.



Chromatogram of crude 14-mer (PTSQPRGDPTGPKE) synthesized on PS3 using Fmoc amino acid N-carboxy anhydrides (except Pro and Arg) and single-coupling protocol (Program 3) for all couplings.



Crude 6-mer glycopeptide synthesized using Fmoc chemistry on PS3. 1 equivalent of glyco-amino acid was used. Data reproduced with permission from Dr. Robin Polt, Professor, University of Arizona Chemistry Department.

RUNS FMOC OR T-BOC CHEMISTRY!

PS3 can run either Fmoc or t-Boc chemistry for a synthesis - you choose!

RELIABLE

PS3 has far fewer moving parts than other synthesizers. The proprietary fluid-manifold valves have only one moving part, a durable PTFE membrane that can be easily replaced by lab personnel. All wetted surfaces in the valves are PTFE. In-line filters for solvents, reaction vessels, and amino acid vials are easily accessible without panel removal. Multiple sensors ensure proper instrument performance. Battery-backed memory saves all standard and user-defined programs in case of power outage. A printer provides a permanent record of each synthesis.

High Quality Chemicals, Amino Acids & Accessories

MAXIMIZE YOUR PERFORMANCE

Reliable Chemistries:

- Amino Acids, resins, activators, solvents and more:
 - Guaranteed weight, purity and quantity
 - All of our chemicals are 100% QC tested
 - 100% fully synthetic amino acids
 - Available in custom pack sizes

Total Solution Delivering Uncompromising Purity:

- Instrument Performance
 - Peptide synthesizers from Gyros Protein Technologies are optimized using our high quality chemistries
 - Minimize down time caused by clogging resulting from impure and unstable reagents
- Better Synthesis Results
 - Synthesize your peptide right the first time
 - Consistent quality reduces synthesis variability
 - Better yield and purity with high quality reagents
- Rapid and Reliable Setup
 - Start syntheses quickly with convenient, affordable, pre-weighed chemicals

STRENGTHEN YOUR PS3

- PS3 Pre-Packed Bottles
 - Ready-to-use vials with equimolar amounts of amino acid and HBTU, measured and QC tested
 - Available in 0.4 mmol, and 1.0 mmol quantities
- Bulk Packaging
 - 25 gram, 100 gram, kilogram and custom lots available
 - Pseudoproline dipeptides available in bulk quantities
 - Deprotect and base solutions, pre-mixed and ready to run
 - TFA for cleaving and premium wash solvents available in various quantities

Visit www.gyrosproteintechnologies.com and our webshop for all your peptide synthesis needs - amino acids, resins, coupling agents, solvents and more.



PS3 Specifications

Number of reaction vessels	3, used sequentially
Synthesis scale range	0.005 - 1.5 mmol (at 2x excess)
Reaction vessel volume	Glass - 30 mL, 75 mL
Number of solvent positions/sizes	2 - 4 L primary solvent 1 - 1 L deprotectant 1 - 1 L base
Number of amino acid positions	45 amino acid vials, 5 mL capacity Pre-packed vials available, 0.4 mmol, 1.0 mmol scales
Chemistries supported	Fmoc, t-Boc, organic, others
Activation	HBTU, HATU, HCTU, TBTU, PyBOP, DIC/OxymaPure, DIC/HOBt and others
Throughput	User defined
Fluid measurement technique	Timed delivery, confirmed with optical sensors
Fluid transfer method	Positive pressure with nitrogen Top-down washing
Agitation method	Nitrogen bubbling
Cleavage	Off instrument
Waste container	(1) 20 L container
Control interface	On-board CPU, LCD display and keypad Preset and user programmable coupling conditions Manual operation, cleaning procedures
Reporting	Direct output to external printer (printer included on 115 V units only)
Power	115 V/60 Hz or 230 V/50 Hz
Dimensions	32"W, 21"D, 19.5"H (81 cm W, 53 cm D, 49 cm H)
Weight	Approximately 51 lbs. (23 kg)
Warranty	One year, parts and labor

ORDERING INFORMATION

Catalog #	Description
PS3-000	PS3 Peptide Synthesizer, 115 V
PS3-230	PS3 Peptide Synthesizer, 230 V

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D0031794/B

Tribute[®] UV-IR

Benchtop Peptide Synthesizer



www.gyrosproteintechnologies.com

GYROS PROTEIN
Technologies

Tribute UV-IR Peptide Synthesizer

- Compact Benchtop Model with Touchscreen
- Fast, Efficient Couplings
- High Quality Crude Peptides
- Extremely Flexible
- Automated Cleavage



2 INDEPENDENT REACTION VESSEL PAIRS

- 0.005 - 2.0 mmol scale
- Flexible deliveries and washing (Top-down delivery or bottom-up delivery)
- Adjustable vortex and N₂ mixing
- Chemically-resistant cover with safety interlock

REAL TIME UV MONITORING

- Monitors reaction in vessel and not the waste stream
- Extends deprotection time when needed
- Synthesize the right peptide the first time
- Increases yield and purity
- Reduces solvent consumption

IR HEATING

- Vortex mixing ensures no hot spots
- Test the same protocol with and without heat
- Heat to 2 temperatures
- Optimize process variables
- Precise temperature control

AMINO ACID RACK

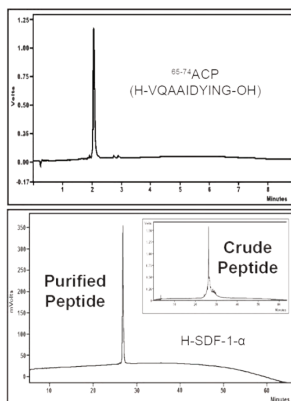
- 101 unattended couplings
- Prepacked amino acid vials available
- Barcode scanning for amino acid vials
- Liquid or solid deliveries
- Ideal for long peptide synthesis

5 SOLVENT POSITIONS

- Automated cleaning routines
- Frugal solvent usage
- Independent bottle pressurization

High Quality Performance

HIGH CRUDE PURITY PEPTIDES

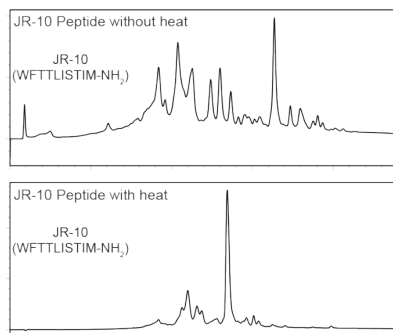


From simple
to complex
peptides

DESIGNED TO HANDLE SPECIAL CHEMISTRIES

- Deliver any solvent to AA vial to dissolve solids
- Dissolve solids in 1 to 2 aliquots for maximum dissolution
- Deliver liquid reagents from AA vial directly to reaction vessel without dilution
- Empty vials and custom barcode labels available for specialty reagents

IMPROVE PEPTIDE PURITY WITH HEAT



In situ activation can be accomplished by delivering amino acid to the reaction vessel first, followed by activator

Pre-Activation: Amino acid is pre-activated in the vial by the addition of base or other reagent solutions

Innovative Features

AUTOMATED CYCLE-DEPENDENT VOLUME INCREMENTATION

- Tribute UV-IR increases its fluid delivery volumes as the peptide grows and the resin volume increases
- Input volume of your choice in your program file
- Tribute increases delivery volumes by a set amount each cycle

SOFTWARE FEATURES

- Select sequence(s) and assign a program for each cycle
- Monitor progress of all reactions
- Customizable amino acid tables
- Good Laboratory Practice data recording, diagnostics and error reporting
- Flexible restart options for interrupted syntheses

BARCODE SCANNING AND AMINO ACID LOADING VIALS



Simply Scan



Load your Amino Acid



Advance the Amino Acid Rack



AUTOMATED CLEAVAGE

- Customizable cleavage programs
- TFA resistant vessels
- Automated cleaning post cleavage
- 50 mL collection tube capacity
- Adjustable start times

USER WORKSTATION UTILITY

- Program and sequence files can be created on the Tribute UV-IR or an external computer using the User Workstation Utility
- Transfer files to and from the Tribute via a portable USB drive
- Calculate coupling difficulty for any peptide sequence

SAFE-RESPONSE FEATURE

Keep your reactions safe during unexpected interruptions as the Tribute UV-IR will:

- Drain active reaction vessels if needed
- Wash resin with solvent of your choice
- Prevent side reactions and undesired byproducts

High Quality Chemicals, Amino Acids & Accessories

MAXIMIZE YOUR PERFORMANCE

Reliable Chemistries:

- Amino Acids, resins, activators, solvents and more:
 - Guaranteed weight, purity and quantity
 - All of our chemicals are 100% QC tested
 - 100% fully synthetic amino acids
 - Available in custom pack sizes

Total Solution Delivering Uncompromising Purity:

- Instrument Performance
 - Tribute peptide synthesizer is optimized on our high quality chemistry
 - Minimize down time caused by clogging resulting from impure and unstable reagents
- Better Synthesis Results
 - Synthesize your peptide right the first time
 - Consistent quality reduces synthesis variability
 - Better yield and purity with high quality reagents
- Rapid and Reliable Setup
 - Start syntheses quickly with convenient, affordable, pre-weighed chemicals

STRENGTHEN YOUR TRIBUTE UV / IR

- Tribute Start-Up Kits
 - Out-of-the box peptide synthesis reagents
 - Thirty 10 mL disposable reaction vessels, two 45 mL disposable reaction vessels
 - Pre-packed amino acids for test peptides
- Tribute Pre-Packed Vials
 - Ready-to-use amino acid vials measured and QC tested
 - Equimolar quantities of high quality amino acid and activator in pre-packed vials for the Tribute
 - Sizes available in 0.5 mmol, 1.5 mmol & 2.5 mmol quantities
- Bulk Packaging
 - 25 gram, 100 gram, kilogram and custom lots available
 - Pseudoproline dipeptides available in bulk quantities
 - Deprotect and base solutions, pre-mixed and ready to run
 - TFA for cleaving and premium wash solvents available in various quantities

Visit www.gyrosproteintechnologies.com and our webshop for all your peptide synthesis needs - amino acids, resins, coupling agents, solvents and more.



Tribute UV/IR Specifications

Number of reaction vessels	2
Synthesis scale range	0.005 to 2.0 mmol
Reaction vessel volume	Plastic, disposable - 10 mL, 45 mL sizes Borosilicate glass - 10 mL, 40 mL
Number of solvent positions/sizes	2 solvents, 4 L capacity 3 user-defined solvent positions, 1 L capacities
Number of amino acid positions	101 amino acid vials, 11 mL capacity Pre-packaged vials available in 0.5 mmol, 1.5 mmol, 2.5 mmol scales
Chemistries supported	Fmoc, t-Boc, organic, peptoid, cyclic, branched, PNA
Activation	DIC/HOBt, DIC/OxymaPure, HBTU, HATU, HCTU, TBTU, PyBOP and others
Throughput	User defined
Fluid measurement technique	Fixed loop measurement with optical sensors
Fluid transfer method	Positive pressure with nitrogen Top-down or bottom-up deliveries and washing
Agitation method	Nitrogen bubbling and vortex mixing can be adjustable and programmable
Cleavage	Automatic, programmable (for Fmoc chemistry only)
Waste container	(1) 20 L D.O.T rated container with over-flow sensor in cap
Control interface	Proprietary Tribute control software, internal CPU, 10" full-color, chemical-resistant VGA Touchscreen, printer included
Reporting	Real-time log file updated for every instrument function, print to external file, pull up on screen or printer
Power	115 V/60 Hz or 230 V/50 Hz
Dimensions	45"W, 25"D, 31.5"H (114 cm W, 63.5 cm D, 80 cm H)
Weight	Approximately 100 lbs. (45 kg)
Warranty	One year, parts and labor
Optional	E-mail-Text Message Status Reporting User Workstation Utility Infrared (IR) Heating UV monitoring

ORDERING INFORMATION

Catalog #	Description
TPS-110	Tribute Peptide Synthesizer, 115 V
TPS-230	Tribute Peptide Synthesizer, 230 V

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Prelude[®] X

Parallel Synthesis and Rapid Heating



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GYROS PROTEIN
Technologies

Prelude[®] X Peptide Synthesizer

PurePep™ Pathway “Inside”: The design power of the proprietary PurePep Pathway (valve block system) results in zero dead volumes, no cross-contamination, and worry-free performance that lasts for years.

- Heated RVs Improve Difficult Syntheses
- Real Time UV Monitoring
- Fast Efficient Couplings
- Oscillation Mixing and N₂ Sparge
- Flexible Synthesis

6 PARALLEL REACTION VESSELS

- Independent heating in each reaction vessel
- Up to 3 reaction vessels may be used as pre-activation chambers
- Controlled heating between 25°C and 90°C
- 0.005 - 1mmol scale per reaction vessel
- Optional UV monitoring in RV position 1
- Top-down washing

AUTOMATIC CLEAVAGE

- TFA bottle only pressurizes during fluid delivery for increased safety
- 50 mL collection tube capacity
- Customizable cleavage programs
- Adjustable start times



27 AND 6 ADDITIONAL AMINO ACID POSITIONS

- Single-Shot™ delivery feature for special amino acid additions
- Low to no prime volumes
- 10, 120, and 400 mL sizes available
- Pre-Packed amino acid bottles available

8 SOLVENT POSITIONS

- Maximize flexibility
- Timed and sensor deliveries
- Dedicated TFA positions remain vented when not in use
- Automated cleaning routines



Fastest High Quality Performance

RAPID INDUCTION HEATING



- Seconds to reach temperature on all 6 RVs
- Controlled heating between 25°C and 90°C
- Choose temperature for each deprotection and coupling

REAL TIME UV MONITORING

- Saves solvent
- Increases yield and purity
- Decreases purification bottleneck
- Extends deprotection when needed
- Deeper knowledge of difficult peptide
- Monitors reaction in vessel and not the waste
- Get the right peptide the first time



OSCILLATION MIXING

- Creates even heating profile
- No hot spots or burnt resin
- Better than N₂ sparge alone
- Keeps resin off side walls and in solution



Prelude X Specifications

Number of reaction vessels	6 (3 with pre-activation option), no resin loader required
Synthesis scale range	0.005 - 1 mmol per reaction vessel, (6 mmol in total)
Reaction vessel volume	Plastic, disposable - 10 mL, 45 mL Borosilicate glass - 10 mL, 25 mL, 40 mL
Number of solvent positions/sizes	1 primary solvent, 8 L capacity 7 user-defined solvent positions, 1 x 4 L & 6 x 1 L capacities; inquire about other sizes
Number of amino acid positions	27 amino acid bottles plus six Single-Shot only positions for specialty reagents 10 mL (for standard or Single-Shot delivery for specialty reagents), 120 mL, and 400 mL sizes Pre-packaged and empty bottles available
Chemistries supported	Fmoc, t-Boc, organic, peptoid, combinatorial, branched, PNA
Activation	HBTU, HATU, HCTU, TBTU, PyBOP, DIC/OxymaPure, DIC/HOBt, others
Throughput	User defined
Fluid measurement technique	Selectable fixed loop measurement with optical sensors for amino acids and reagents, timed delivery of solvents
Fluid transfer method	Positive pressure with nitrogen Top-down washing
Agitation method	Nitrogen bubbling - adjustable, and/or adjustable optional oscillation mixing Induction heating with IR pyrometer temperature sensing
Cleavage	Automated on-board cleavage, separate fluid path and vent
Waste container	(1) 20 L D.O.T rated container with over-flow sensor in cap
Control interface	Proprietary Prelude X control software, internal CPU, external keyboard, mouse, flat panel monitor
Reporting	Real-time log of each instrument function, print to file or printer
Power	115 VAC/60 Hz or 230 VAC/50 Hz
Dimensions	34.5"W, 28"D, 36.25"H (87.6 cm W, 71 cm D, 92 cm H)
Weight	Approximately 260 lbs. (118 kg)
Warranty	One year, parts and labor
Optional	Dynamic Sequence Programming E-mail-Text Message Status Reporting UV Monitoring Induction Heating Pre-activation Programming Oscillation Mixing

ORDERING INFORMATION

Catalog #	Description
PPX-110/230	Prelude X Multiple Synthesizer, with cleavage, 110/230 VAC, 50/60 Hz

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Symphony[®] X

Multiplex Peptide Synthesizer



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GYROS PROTEIN
Technologies

Symphony X[®] Peptide Synthesizer

Ultra PurePep™ Pathway “inside”: The proprietary ultra PurePep Pathway is enhanced with a dedicated microfluidic matrix valve block pathway for each reaction vessel resulting in pure peptides.

- Maximum Throughput and Production
- Fast, Efficient Couplings
- High Quality Crude Peptides
- Extremely Flexible
- Automated Cleavage

8 SOLVENT POSITIONS

- Maximize flexibility
- 20 L solvent container (other sizes available upon request)
- Automated cleaning routines
- No calibration needed for viscosity
- Sensor driven constant volume deliveries

12 INDEPENDENT REACTION VESSEL PAIRS

- Up to 24 RVs with in situ activation
- Optional IR heating and/or UV monitoring in RV position 1
- Up to 12 RVs with pre-activation
- Adjustable nitrogen mixing
- Independent operation
- Top-down washing

IR HEATING

- Oscillation mixing ensures no hot spots
- Test the same protocol with and without heat
- Optimize process variables
- Precise temperature control



28 AND 12 ADDITIONAL AMINO ACID POSITIONS

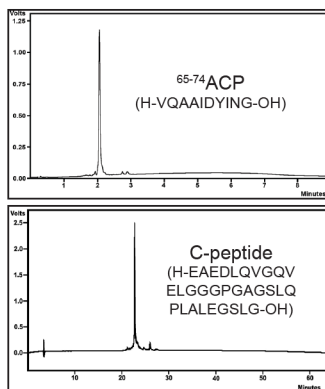
- 10, 120 and 400 mL sizes available
- Pre-packed amino acid bottles available
- Single-Shot™ deliveries
- Precise optical sensor delivery measurements
- Automated cleaning routines

REAL TIME UV MONITORING

- Monitors reaction in vessel and not the waste stream
- Extends deprotection time when needed
- Synthesize the right peptide the first time
- Increases yield and purity
- Reduces solvent consumption

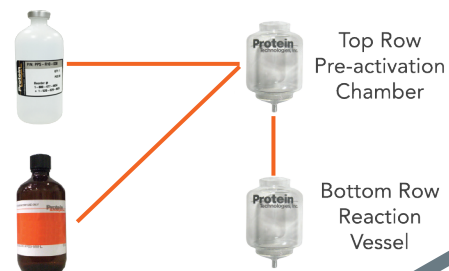
High Quality Performance

HIGH CRUDE PURITY PEPTIDES



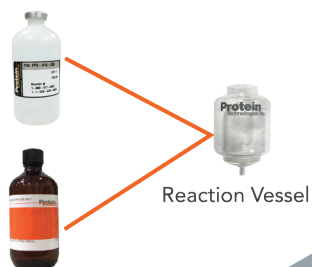
PRE-ACTIVATION

Top row reaction vessels may be used as pre-activation chambers for bottom row reaction vessels



IN SITU

In situ activation can be accomplished by delivering amino acid to the reaction vessel first, followed by activator



Twenty-four 42-mers in 14 hours

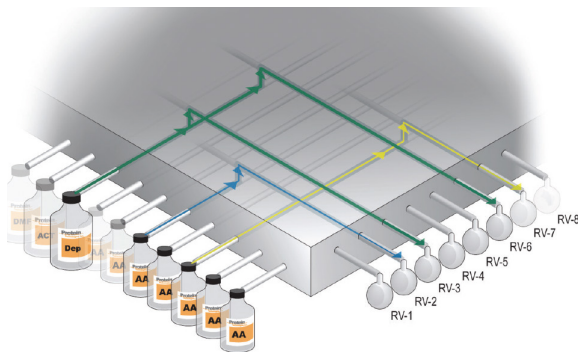
Deprotection Time:	2 min
Coupling time:	5 min
Total Synthesis Time, 24 Peptides:	14 hours

Twenty-four 68-mers in 25 hours

Deprotection Time:	4 min
Coupling time:	5 min
Total Synthesis Time, 24 Peptides:	25 hours

Innovative Features

ULTRA PUREPEP PATHWAY



This proprietary matrix valve block system was specifically designed to minimize dead volumes, eliminating cross contamination and delivering peptides with high crude purity.

The screenshot shows the Synthesis Editor software interface for a synthesis named 'qa_tan.syn'. The interface is divided into several sections:

- Step 1:** Select the Amino Acid file and the Solvent file for this Synthesis. Amino Acid File: qa_aa, Solvent File: qa_sol.
- Step 2:** Select program(s). Pre-Synthesis Program: qatwell.prog, Default Program: qa_tandem.prog, Post-Synthesis Program: qatend.prog.
- Step 3:** Select a sequence. Sequence: qa_glyth.seq.
- Step 4:** Optional: "Random Mode" to run an equal or shorter length sequence in the RV using the RV program steps. Random Mode: YES, Sequence: seq2.seq.
- Sequence:** PV: T S L I S Z Y K G, RV: G W S Y L A P P. Length: 30, C Termus: 94.124, MW (g/mol): 1343.303.
- Step 5:** Optional: Change the program for the sequence's cycle. Resin: G, Program: qa_tandem.prog.

The interface also includes a menu bar (File, Edit, View, Help), a toolbar, and a main window displaying a table of RV Automated Operations and RV Cycle Progress.

AUTOMATED CLEAVAGE

- Customizable cleavage programs
- TFA resistant vessels
- Automated cleaning post cleavage
- 50 mL collection tube capacity
- Adjustable start times

SOFTWARE FEATURES

- Select sequence(s) and assign a program for each cycle
- Monitor progress of all reactions
- Customizable amino acid and solvent tables
- Good Laboratory Practice data recording, diagnostics and error reporting
- Flexible restart options for interrupted syntheses

SINGLE-SHOT

All positions can be used in Single-Shot mode. 12 positions may only be used as Single-Shots. Add expensive special reagents to any reactor without priming or wasting a drop. Save money with no manual interruption required.

SAFE-RESPONSE FEATURE

Keep your reactions safe during unexpected interruptions:

- Drain active reaction vessels if needed
- Wash resin with solvent of your choice
- Prevent side reactions and undesired by products

High Quality Chemicals, Amino Acids & Accessories

MAXIMIZE YOUR PERFORMANCE

Reliable Chemistries:

- Amino Acids, resins, activators, solvents and more:
 - Guaranteed weight, purity and quantity
 - All of our chemicals are 100% QC tested
 - 100% fully synthetic amino acids
 - Available in custom pack sizes

Total Solution Delivering Uncompromising Purity:

- Instrument Performance
 - Symphony X peptide synthesizers are optimized using our high quality chemistries
 - Minimize down time caused by clogging resulting from impure and unstable reagents
- Better Synthesis Results
 - Synthesize your peptide right the first time
 - Consistent quality reduces synthesis variability
 - Better yield and purity with high quality reagents
- Rapid and Reliable Setup
 - Start syntheses quickly with convenient, affordable, pre-weighed chemicals

STRENGTHEN YOUR SYMPHONY X

- Symphony X Start-Up Kits
 - Out-of-the box peptide synthesis reagents
 - 24 Plastic reaction vessels for simultaneous use
 - Pre-packed amino acids for test peptides
- Symphony X Pre-Packed Bottles
 - Ready-to-use amino acid bottles measured and QC tested
 - Sizes available in 5 mmol, 10 mmol and 20 mmol quantities
- Bulk Packaging
 - 25 gram, 100 gram, kilogram and custom lots available
 - Pseudoproline dipeptides available in bulk quantities
 - Deprotect and base solutions, pre-mixed and ready to run
 - TFA for cleaving and premium wash solvents available in various quantities

CUSTOMIZE YOUR SYMPHONY X

- We supply reaction vessels and amino acid bottles to provide added functionality and flexibility

Visit www.gyrosproteintechnologies.com and our webshop for all your peptide synthesis needs - amino acids, resins, coupling agents, solvents and more.



Symphony X Specifications

Number of reaction vessels	24 (12 with pre-activation)
Synthesis scale range	0.005* mmol - 24 mmol (up to ~2 g of resin per RV) *minimum deliveries 1 mL or 0.5 mL with Single-Shot
Reaction vessel volume	Plastic, disposable - 10 mL, 45 mL sizes Borosilicate glass - 10 mL, 40 mL
Number of solvent positions/sizes	1 primary solvent, 20 L capacity. Other sizes available 7 user-defined solvent positions, 0.5 L - 4 L capacities. Other sizes available
Number of amino acid positions	Up to 40 amino acid positions 10 mL, 120 mL and 400 mL bottles
Chemistries supported	Fmoc, t-Boc, organic, peptoid, combinatorial, branched, PNA
Activation	DIC/HOBt, DIC/OxymaPure, HBTU, HATU, HCTU, TBTU, PyBOP and others
Throughput	User defined
Fluid measurement technique	Fixed loop measurement with optical sensors
Fluid transfer method	Positive pressure with nitrogen
Agitation method	Nitrogen bubbling and/or oscillation mixing can be adjustable and programmable
Optional heating method	Induction heating with IR pyrometer temperature sensing
Cleavage	Automatic, programmable (for Fmoc chemistry only)
Waste container	(2) 20 L D.O.T rated containers with over-flow sensor in cap
Control interface	Proprietary Symphony X control software Internal CPU and touchscreen monitor included
Reporting	Real-time log file updated for every instrument function, print to external file, pull up on screen or printer
Power	115 V/60 Hz or 230 V/50 Hz
Dimensions	45"W, 29"D, 66"H (114 cm W, 74 cm D, 168 cm H)
Weight	550 lbs. (250 kg)
Warranty	One year, parts and labor
Optional	Infrared (IR) Heating UV monitoring

ORDERING INFORMATION

Catalog #	Description
SYM-X-110	Symphony X Peptide Synthesizer, 115 V
SYM-X-230	Symphony X Peptide Synthesizer, 230 V

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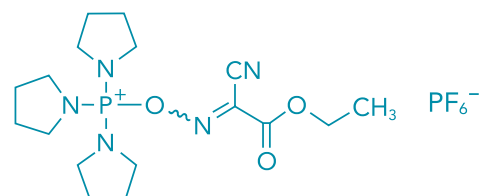
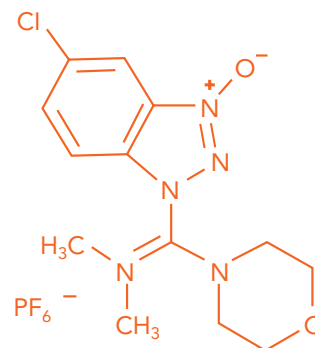
Office:
4675 South Coach Drive
Tucson, AZ 85714, U.S.A.
Phone: 520-629-9626
Toll Free: 800-477-6834

PurePep™ Coupling Reagent

Product Information Sheet

D0027824/A

- **Increase peptide yield and purity**
 - Synthesize your peptides correctly the first time by increasing your coupling efficiency
 - Reduce racemization
 - Prevent premature cleavage of peptide-resins from extremely acid labile solid supports
- **Convenient pack sizes**
 - Pack sizes from 5 g to 1 kg
 - Custom pack sizes available upon request
- **Consistent reagent quality**
 - Consistent reagent quality reduces synthesis variability
 - All our chemicals are 100% QC tested
- **Knowledgeable technical support**
 - All reagents are used in Gyros Protein Technologies' Peptide Synthesis Application Laboratory



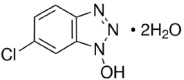
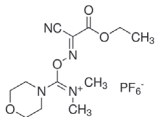
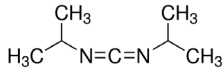
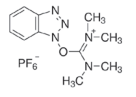
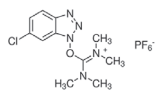
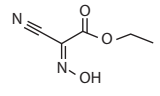
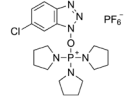
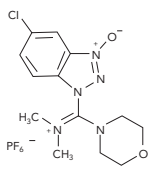
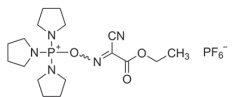
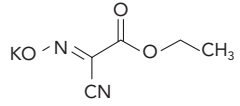
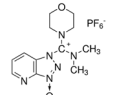
Choosing the Coupling Agent

Choosing the right coupling agent depends on several different factors in the peptide synthesis protocol (table1).

Table 1 Parameters for selecting a coupling agent

Coupling Agent	Use with Acid-Labile Resin	Coupling Conditions – basic pH	Best for Cyclization	High DMF solubility	High DMF Stability
OXYMA BASED					
K-OXYMA® (USED WITH DIC)	✓	Neutral pH		high	+++
PYOXIM®	✓	Basic pH	✓	high	+++
IMMONIUM BASED					
HDMA	✓	Basic pH		low	++
HDMC	✓	Basic pH		medium	++

Ordering information

	Activator	Catalog No.	Description	CAS No.	MW (g/mol)
	6-Cl-HoBt	ACT-100-HoBt	6-Cl-HoBt, 100 g	26198-19-6	169.57
		ACT-500-HoBt	6-Cl-HoBt, 500 g		
		ACT-1K-HoBt	6-Cl-HoBt, 1 kg		
	COMU®	ACT-5-COMU	COMU, 5 g	1075198-30-9	428.27
		ACT-25-COMU	COMU, 25 g		
		ACT-100-COMU	COMU, 100 g		
		ACT-1K-COMU	COMU, 1 kg		
	DIC	ACT-100-DIC	DIC, 100 g	693-13-0	126.2
		ACT-500-DIC	DIC, 500 g		
		ACT-1K-DIC	DIC, 1 kg		
	HBTU	ACT-100-HBTU	HBTU, 100 g	94790-37-1	379.24
		ACT-500-HBTU	HBTU, 500 g		
		ACT-1K-HBTU	HBTU, 1 kg		
	HCTU	ACT-100-HCTU	HCTU, 100 g	330645-87-9	413.69
		ACT-500-HCTU	HCTU, 500 g		
		ACT-1K-HCTU	HCTU, 1 kg		
	OxymaPure®	ACT-25-OXP	Oxyma Pure, 25 g	3849-21-6	142.11
		ACT-100-OXP	Oxyma Pure, 100 g		
		ACT-1K-OXP	Oxyma Pure, 1 kg		
	PyClock®	ACT-25-PYC	PyClock, 25 g	893413-42-8	554.84
		ACT-100-PYC	PyClock, 100 g		
		ACT-1K-PYC	PyClock, 1 kg		
	HDMC*	ACT-5-HDMC	HDMC, 5g	1082951-62-9	455.72
		ACT-25-HDMC	HDMC, 25g		
		ACT-100-HDMC	HDMC, 100g		
		ACT-250-HDMC	HDMC, 250g		
		ACT-500-HDMC	HDMC, 500g		
		ACT-1K-HDMC	HDMC, 1 kg		
	Py-Oxim®*	ACT-25-PYOXIM	Py-Oxim, 25g	153433-21-7	527.38
		ACT-100-PYOXIM	Py-Oxim, 100g		
		ACT-500-PYOXIM	Py-Oxim, 500g		
		ACT-1K-PYOXIM	Py-Oxim, 1kg		
	K-Oxyma®*	ACT-5-KOXY	K-Oxyma, 5g	158014-03-0	180.2
		ACT-25-KOXY	K-Oxyma, 25g		
		ACT-100-KOXY	K-Oxyma, 100g		
		ACT-250-KOXY	K-Oxyma, 250g		
		ACT-1K-KOXY	K-Oxyma, 1kg		
	HDMA	ACT-5-HDMA	HDMA, 5g	958029-37-3	422.3
		ACT-25-HDMA	HDMA, 25g		
		ACT-100-HDMA	HDMA, 100g		

* Gyros Protein Technologies is the exclusive North American distributor for Luxembourg Bio Technologies (LBT) of these coupling agents

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