

PS3TM

Peptide Synthesizer



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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

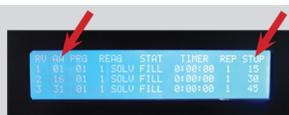
Three reaction vessels let you synthesize up to three completely different peptides sequentially without operator attention. PS3 will perform up to 45 couplings automatically, without reloading or user intervention. Set it up to run overnight or over a weekend, for maximum productivity.

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.

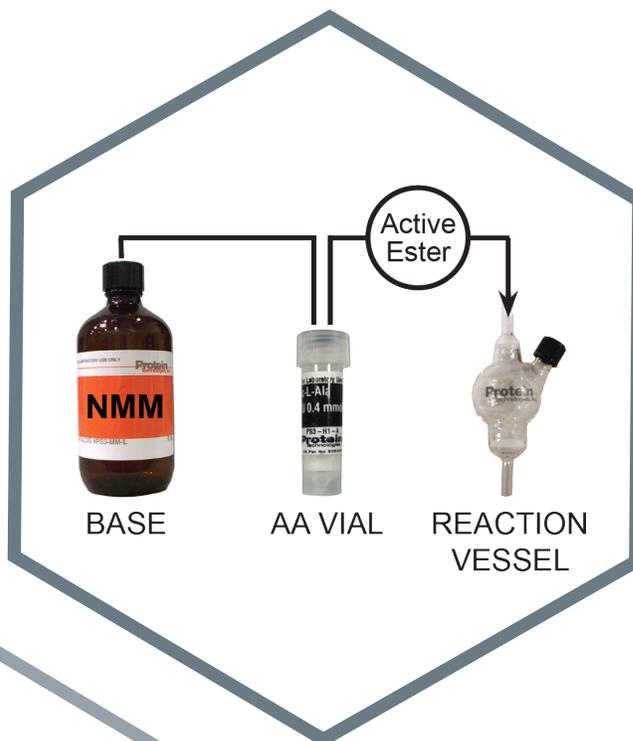
SOFTWARE FEATURES

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

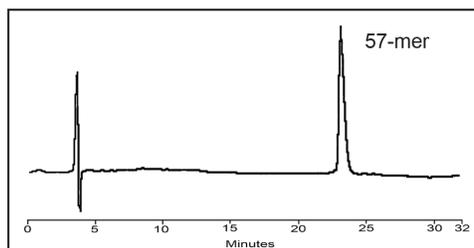
High Quality Performance

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

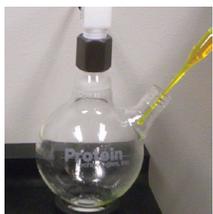


57-mer (PEA small subunit transit peptide) synthesized at 0.1 mmol scale on PS3 using four-fold reagent excess and single 20-minute couplings (Program 3). Purified in one step on a 300A C18 reverse-phase column.

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.

RUN	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!

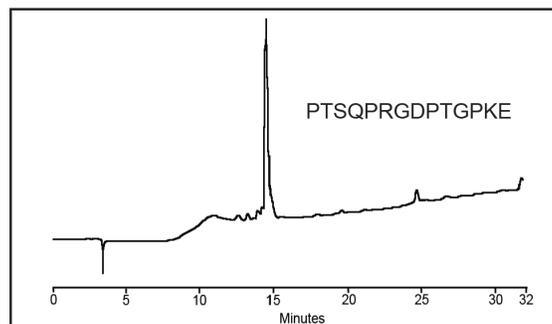
AUTOMATED CYCLE-DEPENDENT VOLUME INCREMENTATION

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.

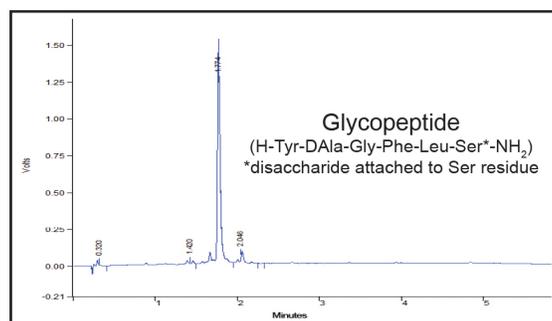
ADAPTABLE

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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