

## Ordering Information

Description	Size	Catalogue No.
<b>Fmoc-amino acids</b>		
Fmoc-Ala-OH	25G	8520030025
Fmoc-Ala-OH	100G	8520030100
Fmoc-Arg(Pbf)-OH	5G	8520670005
Fmoc-Arg(Pbf)-OH	25G	8520670025
Fmoc-Arg(Pbf)-OH	100G	8520670100
Fmoc-Asn(Trt)-OH	25G	8520440025
Fmoc-Asn(Trt)-OH	100G	8520440100
Fmoc-Asp(OtBu)-OH	25G	8520050025
Fmoc-Asp(OtBu)-OH	100G	8520050100
Fmoc-Cys(Trt)-OH	25G	8520080025
Fmoc-Cys(Trt)-OH	100G	8520080100
Fmoc-Gln(Trt)-OH	25G	8520450025
Fmoc-Gln(Trt)-OH	100G	8520450100
Fmoc-Glu(OtBu)-OH	25G	8520090025
Fmoc-Glu(OtBu)-OH	100G	8520090100
Fmoc-Gly-OH	25G	8520010025
Fmoc-Gly-OH	100G	8520010100
Fmoc-His(Trt)-OH	25G	8520320025
Fmoc-His(Trt)-OH	100G	8520320100
Fmoc-Ile-OH	25G	8521010025
Fmoc-Ile-OH	100G	85210100100
Fmoc-Leu-OH	25G	8520110025
Fmoc-Leu-OH	100G	8520110100
Fmoc-Lys(Boc)-OH	25G	8520120025
Fmoc-Lys(Boc)-OH	100G	8520120100
Fmoc-Met-OH	25G	8520020025
Fmoc-Met-OH	100G	8520020100
Fmoc-Phe-OH	25G	8520160025
Fmoc-Phe-OH	100G	8520160100
Fmoc-Pro-OH	25G	8520170025
Fmoc-Pro-OH	100G	8520170100
Fmoc-Ser(tBu)-OH	25G	8520190025
Fmoc-Ser(tBu)-OH	100G	8520190100
Fmoc-Thr(tBu)-OH	25G	8520000025
Fmoc-Thr(tBu)-OH	100G	8520000100
Fmoc-Trp(Boc)-OH	25G	8520500025
Fmoc-Trp(Boc)-OH	100G	8520500100
Fmoc-Tyr(tBu)-OH	25G	8520200025
Fmoc-Tyr(tBu)-OH	100G	8520200100
Fmoc-Val-OH	25G	8520210025
Fmoc-Val-OH	100G	8520210100
<b>Rink Amide Resins</b>		
NovoPEG Rink Amide resin	1G	8550470001
NovoPEG Rink Amide resin	5G	8550470005
NovoPEG Rink Amide resin	25G	8550470025
NovoPEG Rink Amide resin LL	1G	8551250001
NovoPEG Rink Amide resin LL	5G	8551250005
NovoSyn® TG PAP resin	1G	8551290001
NovoSyn® TG PAP resin	5G	8551290005
NovoSyn® TGR HMP resin	1G	8551270001
NovoSyn® TGR HMP resin	5G	8551270005
NovoSyn® TGR R resin	1G	8551280001
NovoSyn® TGR R resin	5G	8551280005
NovoSyn® TGR resin	1G	8550090001
NovoSyn® TGR resin	5G	8550090005
NovoSyn® TGR resin	25G	8550090025
Rink Amide AM resin (100-200 mesh)	1G	8551300001
Rink Amide AM resin (100-200 mesh)	5G	8551300005
Rink Amide AM resin (100-200 mesh)	25G	8551300025
Rink Amide AM resin (200-400 mesh)	1G	8550040001
Rink Amide AM resin (200-400 mesh)	5G	8550040005
Rink Amide AM resin (200-400 mesh)	25G	8550040025
Rink Amide AM resin LL (100-200 mesh)	1G	8551200001
Rink Amide AM resin LL (100-200 mesh)	5G	8551200005
Rink Amide AM resin LL (100-200 mesh)	25G	8551200025
Rink Amide MBHA resin (100-200 mesh)	1G	8550030001

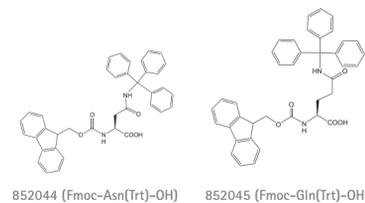
Description	Size	Catalogue No.
Rink Amide MBHA resin (100-200 mesh)	5G	8550030005
Rink Amide MBHA resin (100-200 mesh)	25G	8550030025
Rink Amide MBHA resin HL	5G	8551180005
Rink Amide MBHA resin HL	25G	8551180025
Rink Amide MBHA resin HL	100G	8551180100
Rink Amide MBHA resin LL (100-200 mesh)	1G	8550450001
Rink Amide MBHA resin LL (100-200 mesh)	5G	8550450005
Rink Amide MBHA resin LL (100-200 mesh)	25G	8550450025
Rink Amide NovaGel™	1G	8550310001
Rink Amide NovaGel™	5G	8550310005
Rink Amide NovaGel™	25G	8550310025
Rink Amide PEGA resin	1G	8550160001
Rink Amide PEGA resin	5G	8550160005
Rink Amide resin (100-200 mesh)	1G	8550010001
Rink Amide resin (100-200 mesh)	5G	8550010005
Rink Amide resin (100-200 mesh)	25G	8550010025
Rink Amide resin HL (100-200 mesh)	1G	8551190001
Rink Amide resin HL (100-200 mesh)	5G	8551190005
Rink Amide resin HL (100-200 mesh)	25G	8551190025
Rink Amide SpheriDide™ resin	1G	8551490001
Rink Amide SpheriDide™ resin	5G	8551490005
Rink Amide SpheriDide™ resin	25G	8551490025
<b>Sieber Amide Resins</b>		
NovaSyn® TG Sieber Amide Resin	1G	8550130001
NovaSyn® TG Sieber Amide Resin	5G	8550130005
NovaSyn® TG Sieber Amide Resin	25G	8550130025
Sieber Amide resin	1G	8550080001
Sieber Amide Resin	5G	8550080005
Sieber Amide Resin	25G	8550080025
<b>Coupling Reagents</b>		
BOP	25G	8510040025
BOP	100G	8510040100
CDI	25G	8510540025
CDI	100G	8510540100
COMU	25G	8510850025
COMU	100G	8510850100
DEPBT	25G	8510910025
DEPBT	100G	8510910100
DMAP	25G	8510550025
DMAP	100G	8510550100
DSC	25G	8510050025
DSC	100G	8510050100
Fmoc-Oxyma	5G	8510940005
Fmoc-Oxyma	25G	8510940025
HATU	25G	8510130025
HATU	100G	8510130100
HBTU	25G	8510060025
HBTU	100G	8510060100
HCTU	25G	8510200025
HCTU	100G	8510200100
HMBA	5G	8510420005
HMBA	25G	8510420025
HMPB	1G	8510460001
HMPB	5G	8510460005
HMPB	25G	8510460025
K-Oxyma Pure	25G	8512120025
K-Oxyma Pure	100G	8512120100
MSNT	1G	8510110001
MSNT	5G	8510110005
MSNT	25G	8510110025
Oxyma Pure	25G	8510860025
Oxyma Pure	100G	8510860100
PyAOP	25G	8512210025
PyAOP	100G	8512210100
PyBOP®	25G	8510090025
PyBOP®	100G	8510090100
PyBroP®	25G	8510100025

Description	Size	Catalogue No.
PyBroP®	100G	8510100100
PyCloCk	25G	8510870025
PyCloCk	100G	8510870100
PyOxim	25G	8510950025
PyOxim	100G	8510950100
TBTU	25G	8510080025
TBTU	100G	8510080100
TFFH	1G	8510900001
TFFH	5G	8510900005
TFFH	25G	8510900025
TOTU	25G	8510880025
TOTU	100G	8510880100
WSC - HCL	25G	8510070025
<b>ivDde Derivatives</b>		
Fmoc-Dab(ivDde)-OH	1G	8520840001
Fmoc-Dab(ivDde)-OH	5G	8520840005
Fmoc-Dab(ivDde)-OH	1G	8523690001
Fmoc-D-Lys(ivDde)-OH	5G	8523690005
Fmoc-Dpr(ivDde)-OH	1G	8520830001
Fmoc-Dpr(ivDde)-OH	5G	8520830005
Fmoc-Dpr(ivDde)-OH	1G	8520570001
Fmoc-Lys(Dde)-OH	5G	8520570005
Fmoc-Lys(Dde)-OH	1G	8520820001
Fmoc-Lys(Dde)-OH	5G	8520820005
Fmoc-Ori(ivDde)-OH	1G	8520880001
Fmoc-Ori(ivDde)-OH	5G	8520880005
Fmoc-Ori(ivDde)-OH	25G	8520880025
ivDde-Lys(Fmoc)-OH	1G	8523700001
ivDde-Lys(Fmoc)-OH	5G	8523700005
<b>ODmab Derivatives</b>		
Fmoc-Asp(ODmab)-OH	1G	8520780001
Fmoc-Asp(ODmab)-OH	5G	8520780005
Fmoc-Asp(ODmab)-OH	25G	8520780025
Fmoc-Asp-ODmab	1G	8520790001
Fmoc-Asp-ODmab	5G	8520790005
Fmoc-Glu(ODmab)-OH	1G	8520760001
Fmoc-Glu(ODmab)-OH	5G	8520760005
Fmoc-Glu(ODmab)-OH	25G	8520760025
Fmoc-Glu-ODmab	1G	8520770001
Fmoc-Glu-ODmab	5G	8520770005
<b>Pseudoproline Dipeptides</b>		
Azido-NovaTag™ resin	500MG	8551438500
Azido-NovaTag™ resin	1G	8551430001
Biotin NovaTag™ resin	500MG	8550518500
Biotin NovaTag™ resin	1G	8550510001
Biotin-PEG NovaTag™ resin	500MG	8550558500
Biotin-PEG NovaTag™ resin	1G	8550550001
Dansyl NovaTag™ resin	100MG	8550508100
Dansyl NovaTag™ resin	500MG	8550508500
DNP NovaTag™ resin	100MG	8550538100
DNP NovaTag™ resin	500MG	8550538500
EDANS NovaTag™ resin	100MG	8550548100
EDANS NovaTag™ resin	500MG	8550548500
Fmoc-PEG Biotin NovaTag™ resin	500MG	8551458500
Fmoc-PEG Biotin NovaTag™ resin	1G	8551450001
Hydroxylamine NovaTag™ resin	500MG	8550568500
Hydroxylamine NovaTag™ resin	1G	8550560001
Hydroxylamine PEG NovaTag™ resin	500MG	8551448500
Hydroxylamine PEG NovaTag™ resin	1G	8551440001
MCA NovaTag™ resin	100MG	8550528100
MCA NovaTag™ resin	500MG	8550528500
Universal NovaTag™ resin	500MG	8550578500
Universal NovaTag™ resin	1G	8550570001
Universal PEG NovaTag™ resin	500MG	8550588500
Universal PEG NovaTag™ resin	1G	8550580001

Description	Size	Catalogue No.
Fmoc-Ile-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8521930001
Fmoc-Ile-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8521930005
Fmoc-Leu-Ser(ψ <sup>Me</sup> Me-pro)-OH	1G	8521790001
Fmoc-Leu-Ser(ψ <sup>Me</sup> Me-pro)-OH	5G	8521790005
Fmoc-Leu-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8521840001
Fmoc-Leu-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8521840005
Fmoc-Lys(Boc)-Ser(ψ <sup>Me</sup> Me-pro)-OH	1G	8521780001
Fmoc-Lys(Boc)-Ser(ψ <sup>Me</sup> Me-pro)-OH	5G	8521780005
Fmoc-Lys(Boc)-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8521910001
Fmoc-Lys(Boc)-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8521910005
Fmoc-Phe-Ser(ψ <sup>Me</sup> Me-pro)-OH	1G	8521950001
Fmoc-Phe-Ser(ψ <sup>Me</sup> Me-pro)-OH	5G	8521950005
Fmoc-Phe-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8522010001
Fmoc-Phe-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8522010005
Fmoc-Ser(tBu)-Ser(ψ <sup>Me</sup> Me-pro)-OH	1G	8521870001
Fmoc-Ser(tBu)-Ser(ψ <sup>Me</sup> Me-pro)-OH	5G	8521870005
Fmoc-Ser(tBu)-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8521920001
Fmoc-Ser(tBu)-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8521920005
Fmoc-Trip(Boc)-Ser(ψ <sup>Me</sup> Me-pro)-OH	1G	8522020001
Fmoc-Trip(Boc)-Ser(ψ <sup>Me</sup> Me-pro)-OH	5G	8522020005
Fmoc-Trip(Boc)-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8521880001
Fmoc-Trip(Boc)-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8521880005
Fmoc-Tyr(tBu)-Ser(ψ <sup>Me</sup> Me-pro)-OH	1G	8521890001
Fmoc-Tyr(tBu)-Ser(ψ <sup>Me</sup> Me-pro)-OH	5G	8521890005
Fmoc-Tyr(tBu)-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8521820001
Fmoc-Tyr(tBu)-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8521820005
Fmoc-Val-Ser(ψ <sup>Me</sup> Me-pro)-OH	1G	8521760001
Fmoc-Val-Ser(ψ <sup>Me</sup> Me-pro)-OH	5G	8521760005
Fmoc-Val-Thr(ψ <sup>Me</sup> Me-pro)-OH	1G	8521810001
Fmoc-Val-Thr(ψ <sup>Me</sup> Me-pro)-OH	5G	8521810005
<b>Phospho amino acids</b>		
Fmoc-Ser(PO(OEt)OH)-OH	1G	8520690001
Fmoc-Ser(PO(OEt)OH)-OH	5G	8520690005
Fmoc-Thr(PO(OEt)OH)-OH	1G	8520700001
Fmoc-Thr(PO(OEt)OH)-OH	5G	8520700005
Fmoc-Tyr(PO(OEt)OH)-OH	1G	8520710001
Fmoc-Tyr(PO(OEt)OH)-OH	5G	8520710005
Fmoc-Tyr(PO(NMe <sub>2</sub> )) <sub>2</sub> -OH	1G	8520900001
Fmoc-Tyr(PO(NMe <sub>2</sub> )) <sub>2</sub> -OH	5G	8520900005
<b>NovaTag™ Resins</b>		
Azido-NovaTag™ resin	500MG	8551438500
Azido-NovaTag™ resin	1G	8551430001
Biotin NovaTag™ resin	500MG	8550518500
Biotin NovaTag™ resin	1G	8550510001
Biotin-PEG NovaTag™ resin	500MG	8550558500
Biotin-PEG NovaTag™ resin	1G	8550550001
Dansyl NovaTag™ resin	100MG	8550508100
Dansyl NovaTag™ resin	500MG	8550508500
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Fmoc-PEG Biotin NovaTag™ resin	500MG	8551458500
Fmoc-PEG Biotin NovaTag™ resin	1G	8551450001
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Hydroxylamine PEG NovaTag™ resin	500MG	8551448500
Hydroxylamine PEG NovaTag™ resin	1G	8551440001
MCA NovaTag™ resin	100MG	8550528100
MCA NovaTag™ resin	500MG	8550528500
Universal NovaTag™ resin	500MG	8550578500
Universal NovaTag™ resin	1G	8550570001
Universal PEG NovaTag™ resin	500MG	8550588500
Universal PEG NovaTag™ resin	1G	8550580001

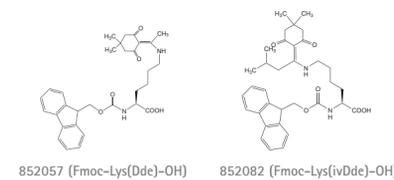
# The history of Novabiochem®

For the past 30 years, Novabiochem® has led the field with innovative products and solutions for peptide synthesis, high-throughput organic chemistry, labeled peptides, and custom manufactured products. To mark our 30th anniversary of the Novabiochem® brand, we would like to share with you this timeline of key Novabiochem® innovations that have changed the field of peptide synthesis. Fmoc-Trp(Boc)-OH, Fmoc-Asn(Trt)-OH, and Rink Amide resins are among the many Novabiochem® innovations that have established Fmoc synthesis strategies as the dominant strategy used today throughout the world. From the very beginning, Novabiochem® scientists have stayed at the forefront of peptide science, collaborating with academic and industrial scientists to publish, invent, and commercialize reagents that solved challenges in peptide synthesis. The Novabiochem® team at Merck Millipore has, and will continue to be, your partner for innovative solutions in peptide synthesis.



**Fmoc-Asn(Trt)-OH, Fmoc-Gln(Trt)-OH**  
The scientists at Novabiochem® had close relationships with the scientists at Ciba-Geigy, which led to the tech transfer and commercial development of Fmoc-Asn(Trt)-OH and Fmoc-Gln(Trt)-OH as new protected Fmoc amino acid derivatives for use in Fmoc SPPS. The use of these new Trt-protected derivatives solved the problems of Fmoc SPPS with the unprotected derivatives, which lead to dehydration side products. In addition, the Trt group offered an improvement over the Mbh protecting group, which was difficult to cleave cleanly. Fmoc-Asn(Trt)-OH and Fmoc-Gln(Trt)-OH are now two of the 20 standard Fmoc amino acids for Fmoc SPPS.

## 1989



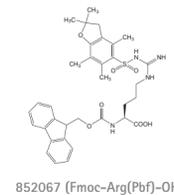
**Fmoc-Lys(Dde)-OH, Fmoc-Lys(ivDde)-OH**  
In 1993, Bycroft and Chan from the University of Nottingham invented the Fmoc-Lys(Dde)-OH, an orthogonally protected derivative for the synthesis of branched and cyclic peptides. The alloc protecting group was difficult to remove, so the easy hydrazine cleavage of the Dde was an attractive improvement. In addition, the UV chromophore of the cleaved Dde group allowed for monitoring of the course of the reaction. Our close relationship with the University of Nottingham allowed Novabiochem® to be the first to commercialize this Dde derivative. Further collaboration between us and Weng Chan led to the invention of the Fmoc-Lys(ivDde)-OH in 1998, which solved the problem of Dde migration to unprotected Lys sidechains. The Fmoc-Lys(ivDde)-OH is now well established as the standard orthogonally protected lysine derivative for Fmoc-SPPS.

## 1994



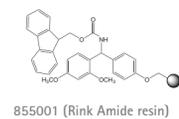
## 1984

**20 Standard Fmoc-amino acids**  
In 1985, Novabiochem® was the first company to manufacture and sell all 20 of what are now known as the standard Fmoc amino acids. At the time, Boc-chemistry was the dominant method for peptide SPPS. Novabiochem® was instrumental in creating the market shift from Boc-to Fmoc-SPPS. In fact, these Fmoc amino acids were the basis for the founding of Novabiochem® in 1984. Six Bachem employees left to start the Novabiochem® company in Laufelfingen, Switzerland, just outside of Basel.

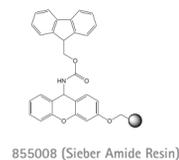


## 1987

**Rink amide resins**  
In the late 1980's, there were no commercially available resins on the market for the synthesis of peptide amides. At the time, peptide amides could only be synthesized using harsh ammonolysis conditions. In 1987, Novabiochem® was the only company to offer a useable peptide amide resin, starting with the Rink Amide resin made with polystyrene that was invented at Ciba-Geigy. Further Rink Amide resin innovations followed in the 1990s with the PEGA and NovaGel resins.

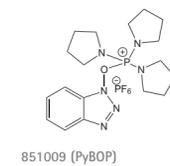


**Sieber amide resins**  
Invented in 1987 by scientists at Ciba-Geigy, the Sieber Amide resin turned out to be a very acid sensitive resin useful for the production of protected peptide amide fragments. Prior to this discovery, it was highly difficult to synthesize protected peptide amide fragments for fragment condensation reactions. The close Novabiochem® relationship with Ciba-Geigy allowed us to use their synthetic method as a starting point for scale up and commercialization activities for the Sieber Amide resin.



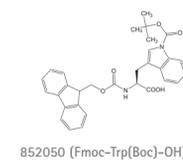
## 1990

**PyBOP**  
Novabiochem® scientists had good connections with Professor Castro at University of Montpellier, the discoverer of the coupling reagent PyBOP. This exclusive relationship led to the commercialization and addition of PyBOP to the Novabiochem® catalog in 1990. PyBOP offered a new less toxic version of BOP, which was the first alternative to the carbodiimide coupling reagents that dominated peptide synthesis methods at that time.



## 1991

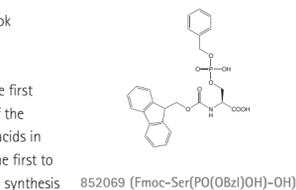
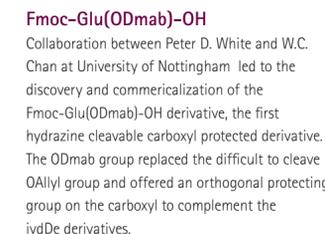
**Fmoc-Trp(Boc)-OH**  
Fmoc-Trp(Boc)-OH was invented by a Novabiochem® scientist as a solution to the then critical limitation of Fmoc SPPS with a side chain unprotected Fmoc-Trp-OH. Fmoc-Trp(Boc)-OH eliminated the many undesired cleavage side reactions observed with the unprotected Trp (sulfonation, alkylation). In addition, Fmoc-Trp(Boc)-OH deprotection required minimal amounts of scavengers; the high concentration of scavengers required with unprotected Trp caused additional problematic side reactions. The innovation of Trp(Boc) cleavage with silanes offered a shift away from odoriferous thiol containing cleavage cocktails. Without the discovery of Fmoc-Trp(Boc)-OH, it would not have been possible to achieve the Fmoc SPPS of Trp-containing peptides. Peptide drugs such as Fuzen™ would not be possible to synthesize using Fmoc SPPS today without this key innovation.



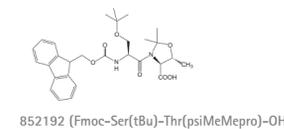
## 1998



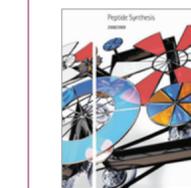
**Phospho amino acids**  
Novabiochem® scientists took the first publication of Fmoc-Ser(PO(OBzl)OH)-OH and extended it to create the first synthesis and publication of the Thr and Tyr phosphoamino acids in 1996. Novabiochem® was the first to develop a viable commercial synthesis of these phospho amino acids, as the published synthetic route was difficult and low yielding. These phosphoamino acids transformed the synthesis of phosphopeptides by Fmoc SPPS, by replacing global phosphorylation techniques with a selective and high yielding approach.



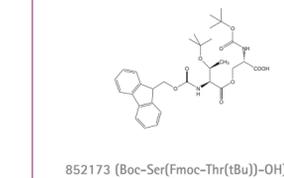
**Pseudoprolines**  
Novabiochem scientists were the first to apply Manfred Mutter's discovery of pseudoprolines towards the synthesis of difficult and long peptides through the minimization of aggregation effects. Novabiochem® was the first to offer 28 of the 40 possible pseudoproline dipeptides, launching them over 10 years starting in 1995. This was possible through extensive efforts to create viable production scale quantities in high quality. Novabiochem® created the market for pseudoproline dipeptides, by transforming the synthesis of difficult peptides by Fmoc SPPS.



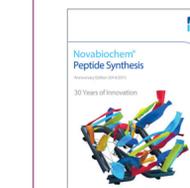
## 2008



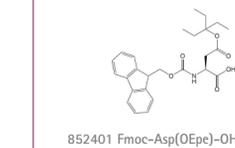
**Isoacyldipeptides**  
Working closely with Professor Kiso in Japan, Novabiochem® scientists developed the first commercial syntheses for many of the 40 possible isoacyldipeptides. The isoacyldipeptides offer the same anti-aggregation benefits as the pseudoproline dipeptides for long and difficult peptide syntheses, but with improved peptide solubility.



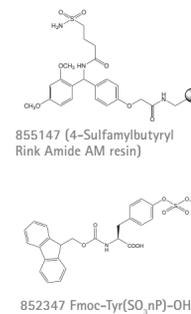
## 2014



**Fmoc-Asp(OEpe)-OH**  
Novabiochem® scientists developed the Fmoc-Asp(OEpe)-OH to minimize challenges with aspartimide formation with Asp-containing sequences. When Fmoc-Asp(OEpe)-OH is used in combination with 1M Oxyma-Pure in 20% piperidine, aspartimide formation is almost eliminated, in contrast to the use of the current standard, Fmoc-Asp(OtBu)-OH.



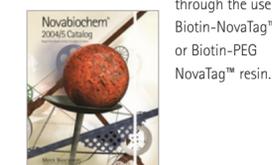
**Sulfamyl Rink Amide resins**  
We, in collaboration with John Offer and Fabienne Burlina at MRC in London, developed an improved version of Ellman's sulfamylbutyryl resin for native chemical ligation. By anchoring the sulfonamide linker to a Rink Amide resin instead of using the sulfamylbutyryl resin, allows generation of a surrogate thioester which can be used directly in NCL reactions. Furthermore, it enables the on-resin reactions to be monitored.



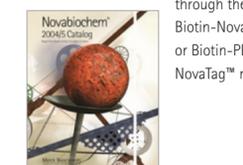
**Fmoc-Tyr(SO<sub>3n</sub>P)-OH**  
Novabiochem® scientists were the first to commercialize the Fmoc-Tyr(SO<sub>3n</sub>P)-OH derivative developed by T.S. Widlanski. Fmoc-Tyr(SO<sub>3n</sub>P)-OH solved the issue of undesired desulfation that occurs during TFA-mediated cleavage. By protecting the sulfate with the acid stable OnP group, this side reaction is eliminated. Following isolation of the cleaved peptide, the removal of the neopentyl can be easily effected by treatment with nucleophiles like ammonium acetate or sodium azide.



## 2004



**NovaTag™ resins**  
NovaTag™ resins were invented by Novabiochem® scientists to solve the technical challenges of making C-terminal functionalized peptides. Starting in 2001, NovaTag™ resins with different containing different labeling reagents were launched. Currently, the preferred way of synthesizing C-terminal biotinylated peptides is through the use of our Biotin-NovaTag™ or Biotin-PEG NovaTag™ resin.



## 2006



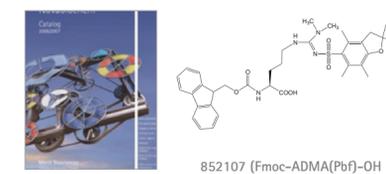
**Dmb-dipeptides : Fmoc-Asp(OtBu)-(Dmb)Gly-OH**  
Novabiochem® scientists conceived of Fmoc-Asp(OtBu)-(Dmb)Gly-OH as a commercially useful Dmb dipeptide for eliminating the aspartimide formation problems with Asp-Gly peptides. The Dmb protecting group was known in the literature but little used prior to this innovation. Today the Fmoc-Asp(OtBu)-(Dmb)-Gly-OH is the reagent of choice for the synthesis of Asp-Gly peptides.



## 2007



**Side-chain methylated Arg derivatives**  
The use of unprotected methylated Arg containing peptides suffered from numerous undesired side reactions. Novabiochem® scientists were the first to develop side chain protected methylated Arg derivatives (Fmoc-Arg(Me,Pbf)-OH, Fmoc-ADMA(Pbf)-OH, and Fmoc-SDMA(Boc)<sub>2</sub>-ONa) to avoid the problems encountered with the unprotected derivatives.



852310 (Fmoc-SDMA(Boc)<sub>2</sub>-ONa)