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Discover SPS Quick Reference Guide

Suggested Parameters for Fmoc Solid Phase Synthesis

NOTE: All values for Power are suggested, and should be adjusted depending on sample size. The goal is to reach the maximum temperature in 75 seconds for Deprotection and Coupling, and in 120 seconds for Cleavage. The Cleavage temperature should NEVER exceed 43 °C.

Fmoc Deprotection:
Power = 20 W
Maximum Temperature = 75 °C
Time = 3:00
Delta Temperature = 5 °C

Coupling:
Power = 20 W
Maximum Temperature = 75 °C
Time = 5:00
Delta Temperature = 5 °C

TFA Cleavage:
Power = 20 W
Maximum Temperature = 38 °C
Time = 30:00
Delta Temperature = 5 °C

Method Programming

1. Press the Open Folder key.
2. Select "New Method".
3. Press the right arrow key until "Mode = SPS". Press ENTER.
4. Set Power, then press ENTER.
5. Set Maximum Temperature, then press ENTER.
6. Set Method Run Time, then press ENTER.
7. Set Delta Temperature to 5 °C, then press ENTER.
8. Set Stirring to "OFF", then press ENTER. (NOTE: Magnetic stirring is not recommended with solid phase synthesis resins.)
9. Set Cooling to "OFF", then press ENTER.
10. Set "Next Stage = (N)", then press ENTER.
11. Set "Save Method = (Y)", then press ENTER.
12. Create a method name using the arrow keys, highlight "Exit", and press ENTER. The method is now saved in the software.

Reagents for Fmoc Solid Phase Synthesis

Activator Base Solution			
Number of Couplings	0.1 mmol Scale		
	mL DMF	mL DIEF	final Vol.
5	19	1	20
10	38	2	40
Per Coupling:	4 mL		

Note: Do not add Activator Base Solution to Amino Acid/Activator until immediately before coupling.

Deprotection Solution				
Number of Couplings	0.1 mmol Scale			
	mL DMF	mL Piperidine	g HOBt	final Vol.
5	28	7	0.49	35
10	56	14	0.98	70
Per Decoupling:	7 mL			

Note: HOBt is optional, but is strongly recommended for sequences susceptible to aspartimide formation.

Cleavage Solution
General cleavage: 95% TFA / 2.5% TIS / 2.5% H_20
For peptides containing Cys, Met, Trp, and/or Arg: 82.5% TFA / 5% thioanisole / 5% H_20 / 5% phenol / 2.5% EDT

Amino Acid and Activator			
Amino Acid	MW	0.1 mmol Scale	
		g AA	g HBTU
Fmoc-Ala-OH	311.3	0.156	0.190
Fmoc-Arg(Pbf)-OH	648.8	0.324	0.190
Fmoc-Asn(Trt)-OH	354.4	0.298	0.190
Fmoc-Asp(OtBu)	411.5	0.206	0.190
Fmoc-Cys(Trt)-OH	585.7	0.293	0.190
Fmoc-Gln(Trt)-OH	610.7	0.305	0.190
Fmoc-Glu(OtBu)-OH	425.5	0.213	0.190
Fmoc-Gly-OH	297.3	0.149	0.190
Fmoc-His(Trt)-OH	619.7	0.310	0.190
Fmoc-Ile-OH	353.4	0.177	0.190
Fmoc-Leu-OH	353.4	0.177	0.190
Fmoc-Lys(Boc)-OH	468.5	0.234	0.190
Fmoc-Met-OH	371.5	0.186	0.190
Fmoc-Phe-OH	387.4	0.194	0.190
Fmoc-Pro-OH	337.4	0.169	0.190
Fmoc-Ser(tBu)-OH	383.4	0.192	0.190
Fmoc-Thr(tBu)-OH	397.5	0.199	0.190
Fmoc-Trp(Boc)-OH	526.6	0.263	0.190
Fmoc-Tyr(tBu)-OH	459.6	0.230	0.190
Fmoc-Val-OH	339.4	0.170	0.190

Protocol for Fmoc Solid Phase Synthesis
(0.1 mmol scale)