

Matrixyl-Patch vs Matrixyl-Cream: a comparative in-vivo investigation of Matrixyl (MTI) effect on wound healing

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Kaiser test: Kaiser test contains a solution containing Ninhydrin, which is very sensitive to the first type of amine. Ninhydrin reacts with the free amino head of the peptide chain, and its binding to the chain changes the color of the reaction to dark blue. This reactor does not react with the second type of amine, and it does not change colors.

Quality control tests:

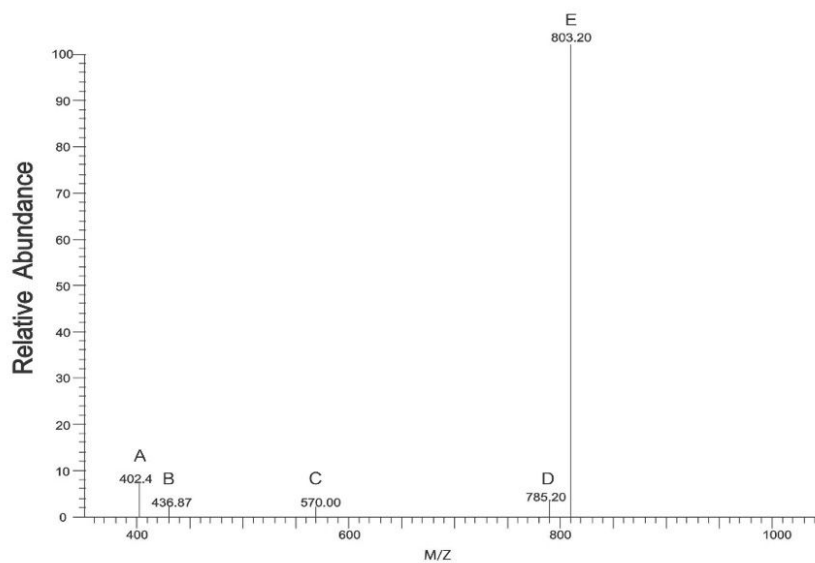


Figure.S1: Mass spectrum of synthesized peptide. $A \rightarrow (M+2H^+)/2$, $B \rightarrow KTTS+H^+$,

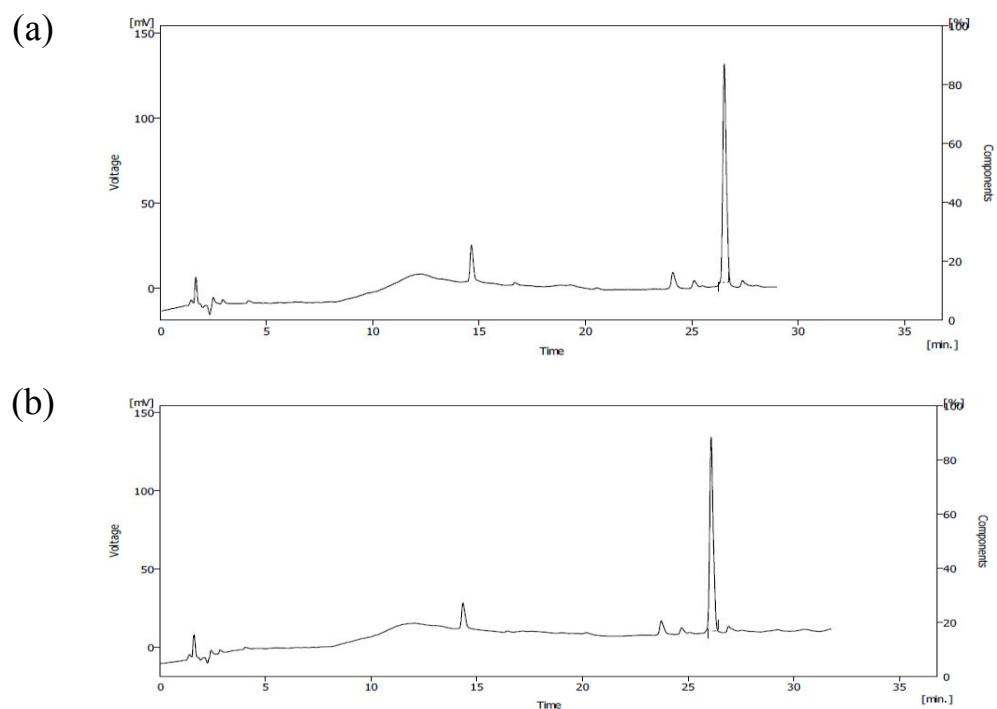
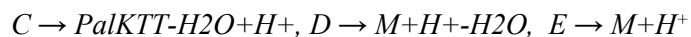


Figure S2. Controlling MTI assay after synthesis compared with commercially purchased Matrixyl powder, measured by HPLC **a)** LC Chromatogram of 100 ppm injection of commercially purchased Matrixyl powder as standard **b).** LC Chromatogram of 100 ppm injection of sample

Table S1. Assay on anhydrous basis of MTI. Powder MTI purchased from Sigma-Aldrich is used as standard here.

Parameter	Sample	Standard
W(g)	0.01067	0.0101
W(mg)	10.67	10.1
ml	10	10
DF	0.1	0.1
LOD/KF	4.89	4.8
W(reduced)	4.89	4.8
W correct	10.148237	9.6152
ppm theory	101.48237	96.152
AUC 1	1272.586	1205.767

AUC 2	1285.782	1199.422
AUC 3	1270.695	1195.969
Mean	1276.354333	1200.386
SD	8.219163238	4.969625036
RSD(<2.0%)	0.643956229	0.414002249
ppm exp	102.2371319	
Assay	100.7	

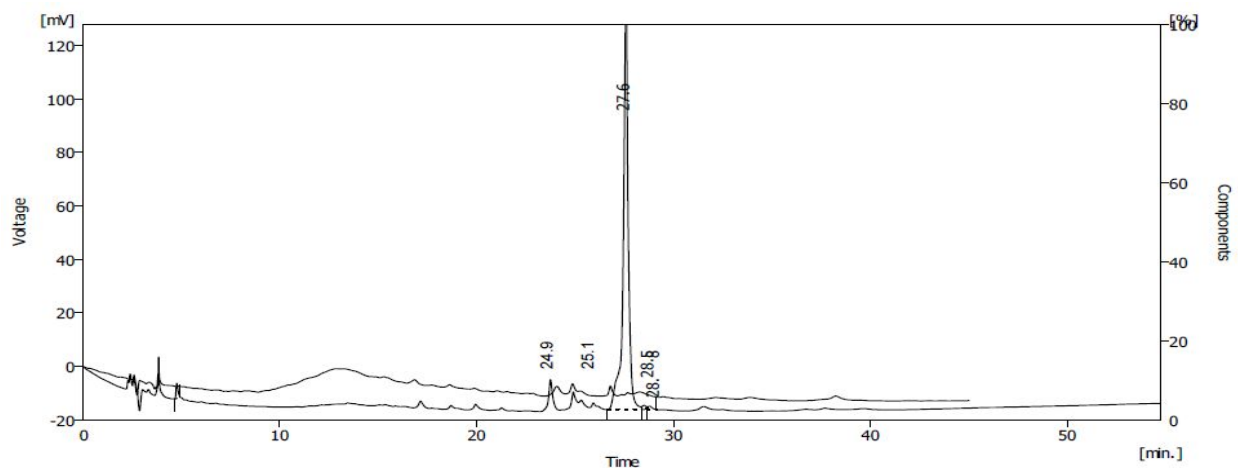


Figure S3: Measuring the purity of synthesized MTI by HPLC. LC Chromatogram of 100 ppm injection of MTI, compared with Distilled water as baseline.

Table S2: Purity determination of MTI

	Reten.time [min]	Area [mV.s]	Area [%]
1	24.9	23.270	0.82
2	25.1	14.731	0.52
3	26.2	2763.128	97.22
4	28.5	8.680	0.30
5	28.8	11.096	0.39
	Sum	2842.046	100.0

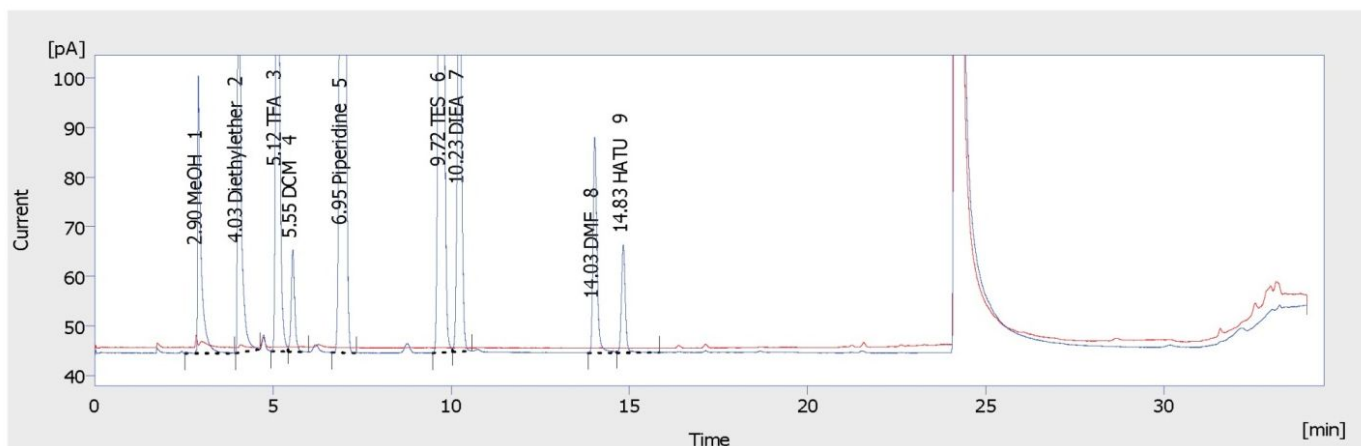


Figure S4: Determination of residual solvent after Matrixyl synthesis by gas chromatography

Table S3. pH determination of MTI for three replications

MTI Samples	pH
Sample 1	4.08
Sample 2	4.07
Sample 3	4.09
Average	4.08 ± 0.01

Table S4: Moisture content of MTI measured by Karl Fischer test for four replications

MTI samples	Moisture content (%)
Sample 1	5.14
Sample 2	4.43
Sample 3	3.59
Sample 4	6.41
Average	4.89 ± 1.19