

## ORIGINAL ARTICLE

# Fibrinogen and Kininogen are Potential Serum Protein Biomarkers for Depressive Disorder

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### SUMMARY

**Background:** Depressive disorder is a debilitating psychiatric mental disease. However, no biological methods are used for the diagnosis of this disorder. Proteomic approaches for biomarker discovery may provide an important objective tool for diagnostics of depression. This study aimed to identify serum protein biomarkers for diagnosis of depressive disorder.

**Methods:** We screened for potential depression biomarkers in 175 serum samples from 86 patients and 89 healthy controls. Serum protein spectrums were detected by matrix-assisted laser desorption ionization time of flight mass spectrometry (MALDI-TOF MS). Differentially expressed peptides among the two groups were analyzed and followed by sequence analysis to identify these peptides.

**Results:** Five peaks were found to have a significant different between the depression and healthy control groups. Among them, up-regulated m/z 1,466.21 and down-regulated m/z 1,944.99 are identified as the fractions of fibrinogen alpha chain and kininogen 1, respectively.

**Conclusions:** Fibrinogen and kininogen may be potential serum protein biomarkers in the diagnosis and prognosis of depressive disorders.

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## Supplementary Table.

Table S1. Differentially expressed peaks between patients with depression and healthy controls group in three models.

Total				Female				Male			
Up-regulated		Down-regulated		Up-regulated		Down-regulated		Up-regulated		Down-regulated	
m/z	p	m/z	p	m/z	p	m/z	p	m/z	p	m/z	p
808.58	< 0.01	1,187.05	< 0.01	806.44	< 0.01	1,679.45	< 0.01	1,078.19	< 0.01	1,945.21	0.01
810.63	< 0.01	1,679.76	< 0.01	808.44	< 0.01	1,787.14	< 0.01	1,189.46	< 0.01	2,012.04	0.01
822.39	< 0.01	1,944.99	< 0.01	822.21	< 0.01	1,944.64	< 0.01	1,201.26	< 0.01	4,063.79	< 0.01
1,020.96	< 0.01	2,011.71	< 0.01	1,020.92	< 0.01	2,011.48	< 0.01	1,207.46	< 0.01	4,092.41	< 0.01
1,077.96	< 0.01	2,071.41	< 0.01	1,077.87	< 0.01	2,070.72	< 0.01	1,221.27	0.02	4,111.01	< 0.01
1,189.25	< 0.01	2,082.16	< 0.01	1,189.07	< 0.01	2,081.91	0.02	1,264.32	< 0.01	4,137.52	< 0.01
1,207.14	< 0.01	2,127.49	< 0.01	1,207.08	< 0.01	2,127.23	< 0.01	1,351.46	< 0.01	4,154.25	< 0.01
1,221.03	< 0.01	2,272.11	< 0.01	1,220.95	0.02	2,271.76	< 0.01	1,466.56	< 0.01	4,210.07	0.02
1,263.99	< 0.01	2,359.08	< 0.01	1,263.93	< 0.01	2,358.61	< 0.01	1,519.58	< 0.01	5,162.17	0.01
1,351.16	< 0.01	2,725.86	< 0.01	1,351.07	< 0.01	2,659.91	< 0.01	1,537.27	< 0.01		
1,466.21	< 0.01	2,862.68	< 0.01	1,466.16	< 0.01	2,725.41	< 0.01	2,769.42	< 0.01		
1,519.39	< 0.01	3,818.25	< 0.01	1,519.28	0.03	2,862.21	< 0.01	3,191.97	< 0.01		
1,537.07	< 0.01	4,063.43	< 0.01	2,768.77	< 0.01	3,273.69	0.02	3,262.76	< 0.01		
2,553.94	< 0.01	4,092.21	< 0.01	2,932.05	0.02	3,814.66	< 0.01	5,908.15	< 0.01		
2,769.18	< 0.01	4,110.97	< 0.01	3,191.60	< 0.01	4,062.66	< 0.01				
2,932.45	< 0.01	4,124.49	< 0.01	3,262.36	< 0.01	4,091.59	< 0.01				
2,952.38	< 0.01	4,136.97	< 0.01	3,341.34	< 0.01	4,110.55	< 0.01				
3,191.87	< 0.01	4,154.27	< 0.01	3,890.57	0.01	4,153.62	< 0.01				
3,262.76	< 0.01	4,166.97	< 0.01	5,338.35	< 0.01	4,166.42	0.02				
5,399.12	< 0.01	4,210.03	< 0.01	5,867.40	< 0.01	4,282.53	0.03				
5,876.88	< 0.01	5,006.16	0.03	5,907.53	< 0.01	8,137.87	< 0.01				
5,908.51	< 0.01	5,162.01	< 0.01								
		8,139.85	< 0.01								