

## Supplementary Materials

# Detection of Circulating Serum Protein Biomarkers of Non-Muscle Invasive Bladder Cancer after Protein Corona-Silver Nanoparticles Analysis by SWATH-MS

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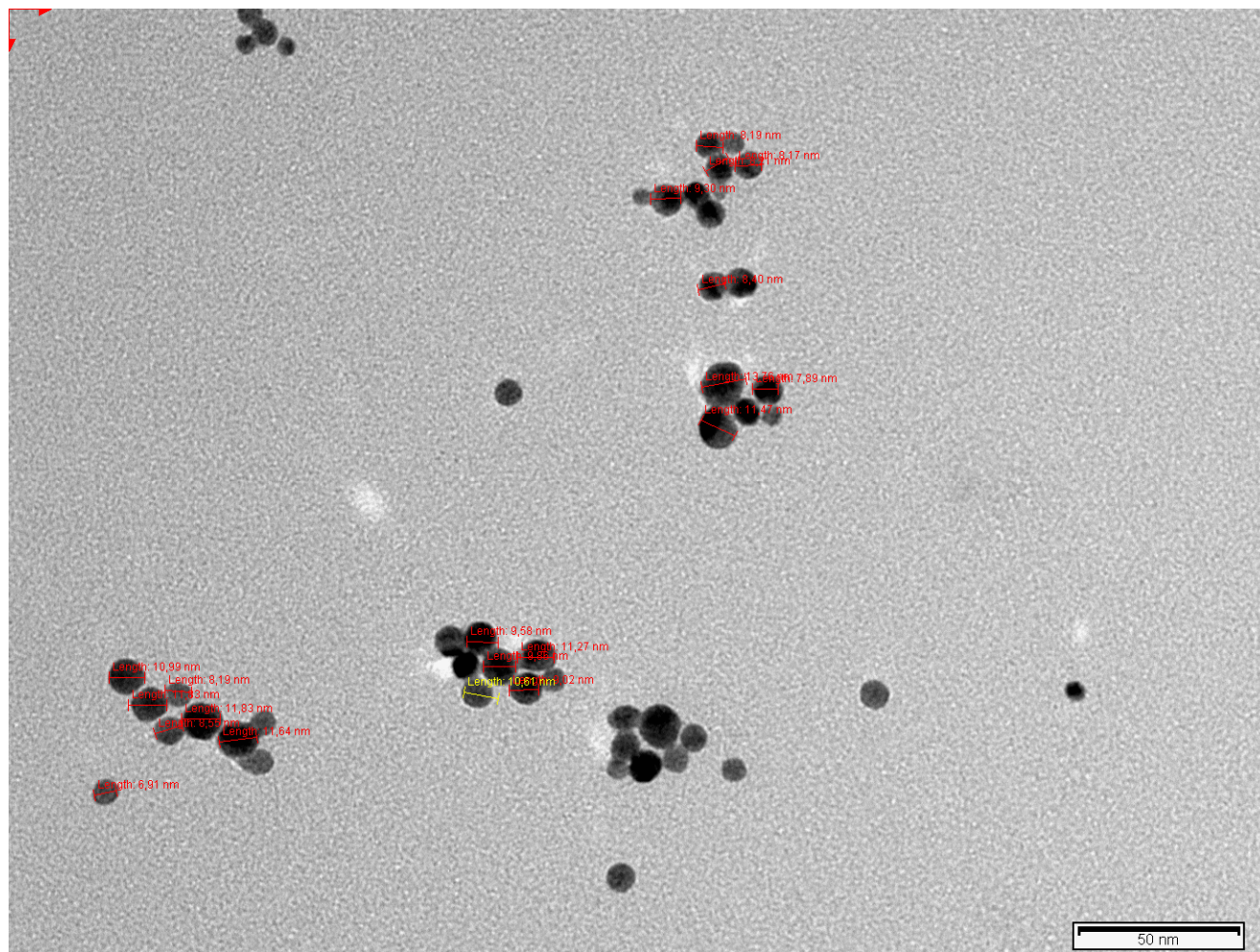
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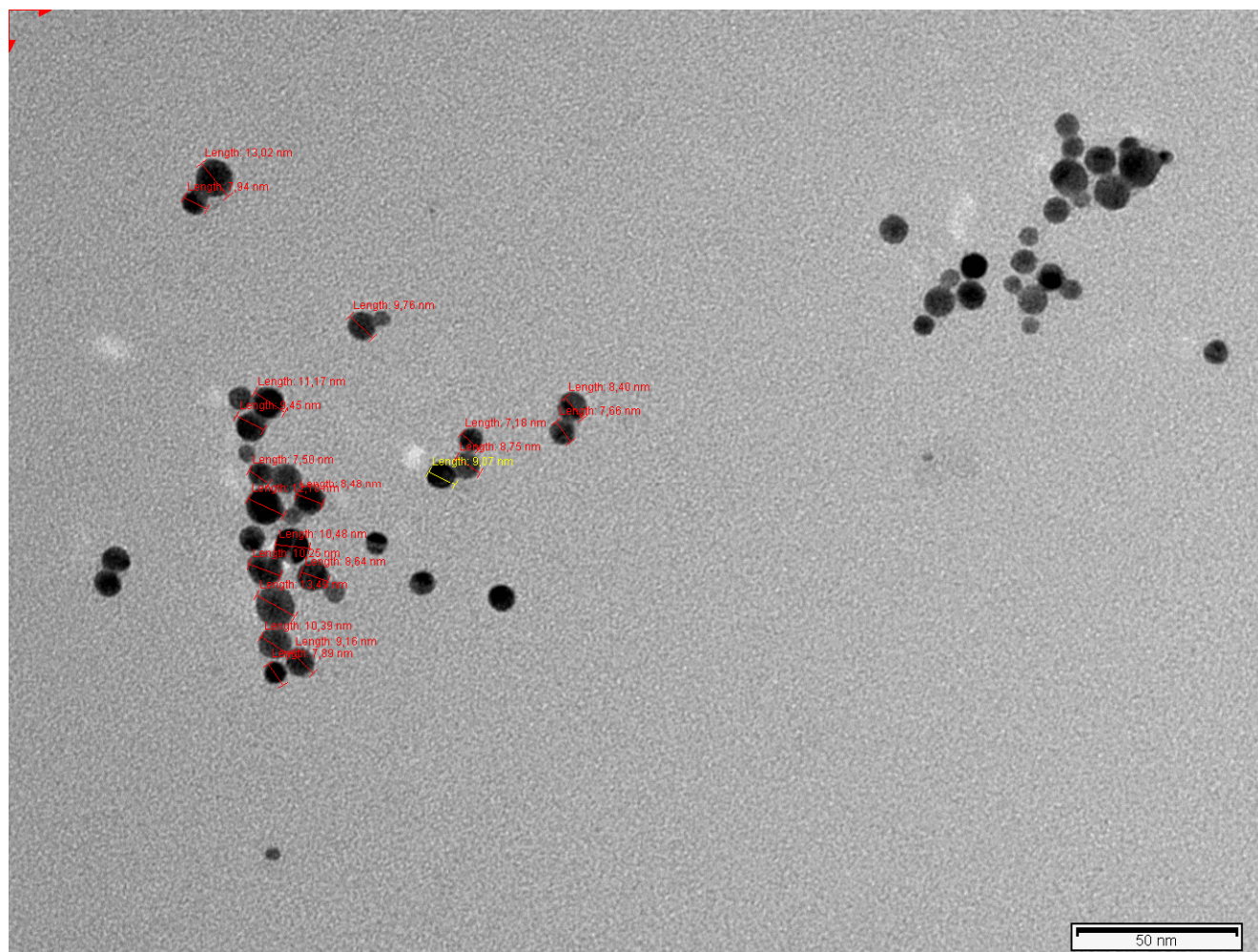
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**Table S1.** TEM image and characterization data of AgNPs@citrate in Milli-Q-water.

<b>AgNPs@citrate (nm)</b>			
1	7.58	21	9.30
2	7.66	22	9.45
3	7.89	23	9.58
4	7.89	24	9.76
5	7.89	25	9.86
6	7.98	26	10.25
7	8.17	27	10.39
8	8.19	28	10.48
9	8.19	29	10.61
10	8.21	30	10.99
11	8.40	31	11.17
12	8.40	32	11.27
13	8.48	33	11.47
14	8.55	34	11.64
15	8.64	35	11.83
16	8.75	36	11.83
17	8.92	37	12.10
18	9.02	38	13.02
19	9.07	39	13.49
20	9.16	40	13.76
Count	40		
Mean	9.73		
Minimum	7.58		
Maximum	13.76		
Standar Deviation	1.70		

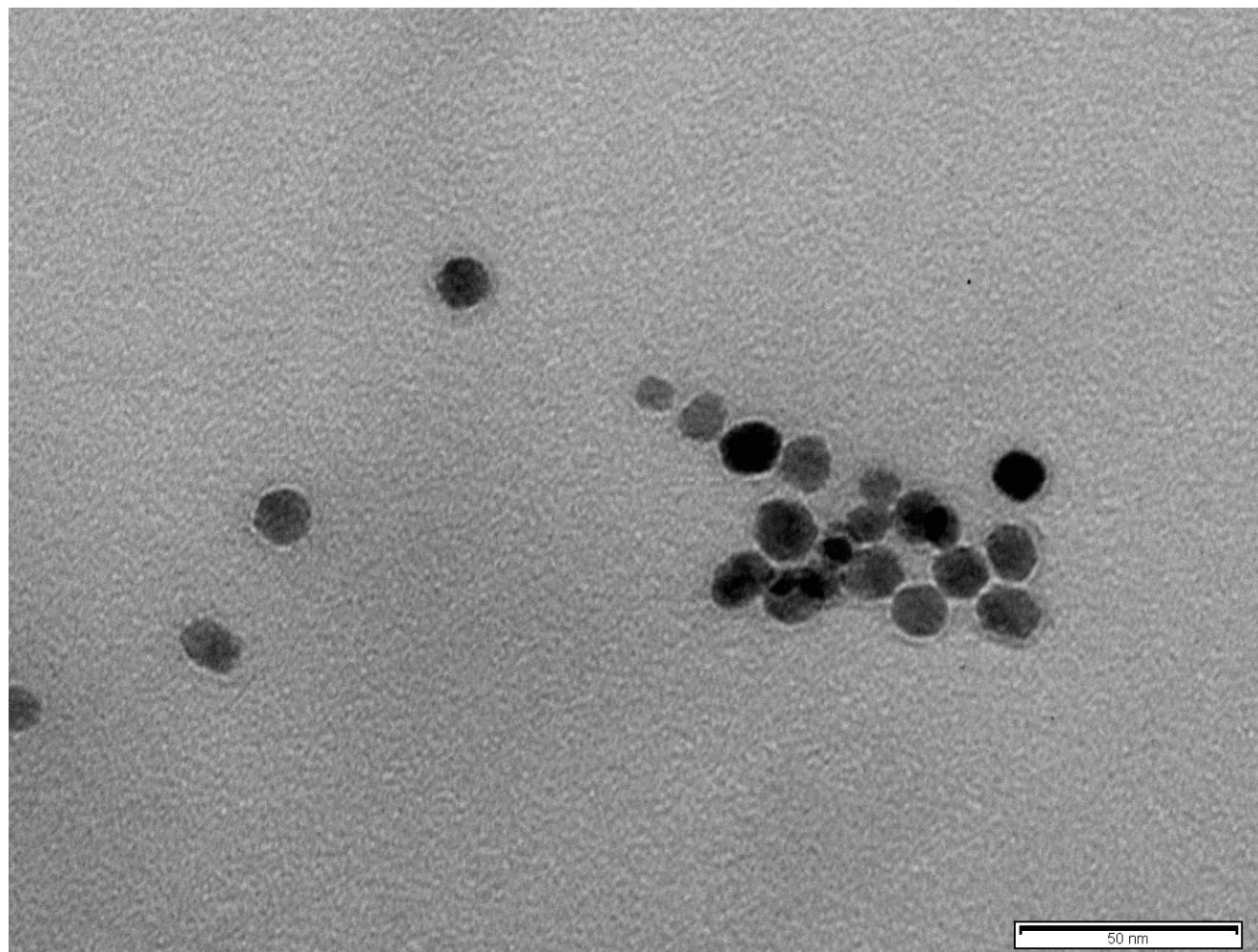




**Table S2.** TEM image and characterization data of AgNPs@PC-HC (healthy controls) in Milli-Q-water.

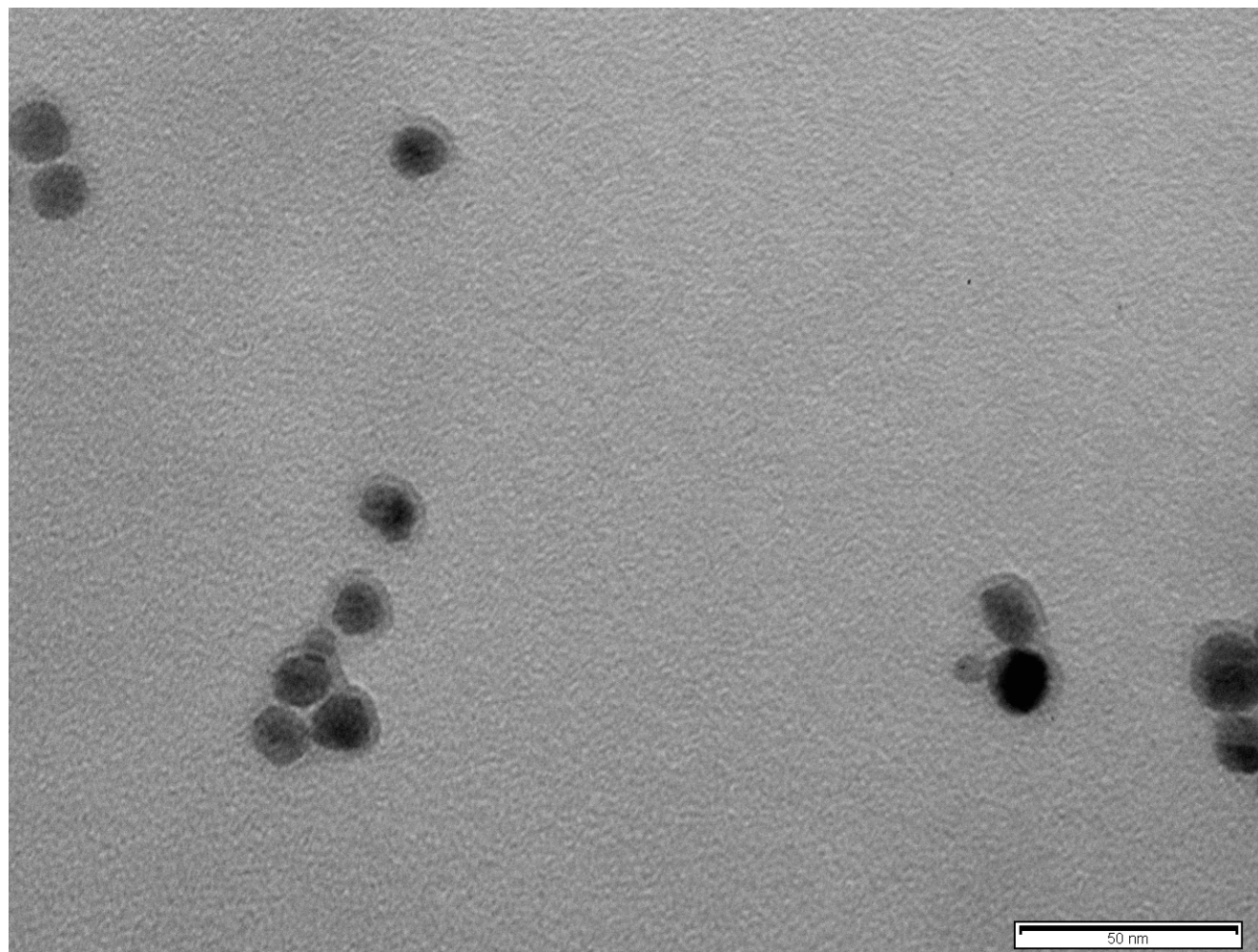
AgNPs@PC-HC (nm)	
1	11.97
2	12.71
3	12.36
4	9.95
5	10.20
6	13.58
7	12.31
8	14.13
9	11.29
10	12.23
11	8.67
12	12.13
13	11.57
14	11.41
15	13.65
16	12.12
17	12.20
Count	17
Mean	11.91
Minimum	8.67
Maximum	14.13
Standar Deviation	1.37





**Table S3.** TEM image and characterization data of AgNPs@PC-NMIBC (patients) in Milli-Q-water.

AgNPs@PC-NMIBC (nm)	
1	14.39
2	13.47
3	12.60
4	13.54
5	12.25
6	11.59
7	13.27
8	12.08
9	10.94
10	15.23
11	17.86
Count	11
Mean	13.38
Minimum	10.94
Maximum	17.86
Standar Deviation	1.93





**Table S4.** Differentially expressed proteins (up- and down-regulated) ( $p$ -value  $\leq 0.05$ ) detected in NMIBC patients (subtypes T1 and Ta) relative to the control group after the analysis of the PC coated AgNPs ( $9.73 \pm 1.70$  nm) by SWATH-MS.

Control vs. T1	Protein Name	UniProt Name	Gene	$p$ -value	Fold Change	
	Coagulation factor IX	FA9_HUMAN	F9	0,00027325	1,556427466	↑ T1
	Complement C1r subcomponent	C1R_HUMAN	C1R	0,003153549	1,353684058	↑ T1
	Thrombospondin-1	TSP1_HUMAN	THBS1	0,010749764	1,373023301	↑ T1
	Apolipoprotein C-II	APOC2_HUMAN	APOC2	0,014389697	1,814038601	↑ T1
	Plasminogen	PLMN_HUMAN	PLG	0,023399686	1,350545683	↑ T1
	Serum amyloid A-4 protein	SAA4_HUMAN	SAA4	0,028039723	1,771595498	↑ T1
	Plasma kallikrein	KLKB1_HUMAN	KLKB1	0,030943499	1,245457438	↑ T1
	Beta-2-glycoprotein 1	APOH_HUMAN	APOH	0,031038566	1,413139568	↑ T1
	Coagulation factor XII	FA12_HUMAN	F12	0,036056657	1,320811796	↑ T1
	Lipopolysaccharide-binding protein	LBP_HUMAN	LBP	0,038383686	1,483385757	↑ T1
	Complement C1s subcomponent	C1S_HUMAN	C1S	0,040399897	1,323391355	↑ T1
	Carboxypeptidase N catalytic chain	CBPN_HUMAN	CPN1	1,07E-06	1,760706885	↑ Control
	Apolipoprotein M	APOM_HUMAN	APOM	2,49E-05	1,878243864	↑ Control
	Complement C4-A	CO4A_HUMAN	C4A	3,35E-05	1,872021358	↑ Control
	Apolipoprotein F	APOF_HUMAN	APOF	0,000241559	2,110329795	↑ Control
	Insulin-like growth factor-binding protein complex acid labile subunit	ALS_HUMAN	IGFALS	0,000288722	1,493728327	↑ Control

<b>Carboxypeptidase N subunit 2</b>	<b>CPN2_HUMAN</b>	<b>CPN2</b>	<b>0,000333613</b>	<b>1,475909706</b>	<b>↑ Control</b>
Complement factor B	CFAB_HUMAN	CFB	0,000636998	1,372510381	↑ Control
<b>Alpha-2-HS-glycoprotein</b>	<b>FETUA_HUMAN</b>	<b>AHSG</b>	<b>0,001026046</b>	<b>1,631445446</b>	<b>↑ Control</b>
Complement C4-B	CO4B_HUMAN	C4B	0,001425038	1,622969299	↑ Control
<b>Fibronectin</b>	<b>FINC_HUMAN</b>	<b>FN1</b>	<b>0,001730097</b>	<b>1,657544918</b>	<b>↑ Control</b>
<b>Serum paraoxonase/arylesterase 1</b>	<b>PON1_HUMAN</b>	<b>PON1</b>	<b>0,002205149</b>	<b>1,510381818</b>	<b>↑ Control</b>
Complement component C8 gamma chain	CO8G_HUMAN	C8G	0,003262992	1,467525612	↑ Control
Ficolin-2	FCN2_HUMAN	FCN2	0,003600193	1,765148338	↑ Control
Apolipoprotein E	APOE_HUMAN	APOE	0,004492395	1,342803692	↑ Control
Apolipoprotein A-IV	APOA4_HUMAN	APOA4	0,004832934	1,330273828	↑ Control
Hyaluronan-binding protein 2	HABP2_HUMAN	HABP2	0,005064575	1,385807696	↑ Control
<b>Antithrombin-III</b>	<b>ANT3_HUMAN</b>	<b>SERPINC1</b>	<b>0,005098494</b>	<b>1,365268921</b>	<b>↑ Control</b>
<b>Mannan-binding lectin serine protease 1</b>	<b>MASP1_HUMAN</b>	<b>MASP1</b>	<b>0,006757744</b>	<b>1,42660064</b>	<b>↑ Control</b>
Platelet basic protein	CXCL7_HUMAN	PPBP	0,007192858	1,607064055	↑ Control
<b>Complement C2</b>	<b>CO2_HUMAN</b>	<b>C2</b>	<b>0,009799227</b>	<b>1,331702175</b>	<b>↑ Control</b>
<b>Sex hormone-binding globulin</b>	<b>SHBG_HUMAN</b>	<b>SHBG</b>	<b>0,010572352</b>	<b>1,694430151</b>	<b>↑ Control</b>
Pigment epithelium-derived factor	PEDF_HUMAN	SERPINF1	0,0177288	2,054793133	↑ Control
<b>Prothrombin</b>	<b>THRB_HUMAN</b>	<b>F2</b>	<b>0,018741921</b>	<b>1,269520963</b>	<b>↑ Control</b>
<b>N-acetylmuramoyl-L-alanine amidase</b>	<b>PGRP2_HUMAN</b>	<b>PGLYRP2</b>	<b>0,01966924</b>	<b>1,448722587</b>	<b>↑ Control</b>
Complement C5	CO5_HUMAN	C5	0,022678206	1,261047319	↑ Control

	Vitamin K-dependent protein C	PROC_HUMAN	PROC	0,023388014	1,233676674	↑ Control
	Coagulation factor X	FA10_HUMAN	F10	0,028581041	1,261414143	↑ Control
	Apolipoprotein A-II	APOA2_HUMAN	APOA2	0,029458523	2,388772729	↑ Control
	Plasma protease C1 inhibitor	IC1_HUMAN	SERPING1	0,044659515	1,307368825	↑ Control
Control vs. Ta	<b>Protein Name</b>	<b>UniProt Name</b>		<b><i>p</i>-value</b>	<b>Fold Change</b>	
	Coagulation factor IX	FA9_HUMAN	F9	1,11E-06	1,623429779	↑ Ta
	Thrombospondin-1	TSP1_HUMAN	THBS1	1,25E-06	1,582147778	↑ Ta
	Fibrinogen alpha chain	FIBA_HUMAN	FGA	0,00018616	1,692142233	↑ Ta
	Complement C1s subcomponent	C1S_HUMAN	C1S	0,0006224	1,500323307	↑ Ta
	Complement component C7	CO7_HUMAN	C7	0,0014036	1,37740437	↑ Ta
	Vitronectin	VTNC_HUMAN	VTN	0,00148246	1,330829684	↑ Ta
	Plasminogen	PLMN_HUMAN	PLG	0,00258423	1,357256198	↑ Ta
	Complement component C9	CO9_HUMAN	C9	0,00259827	1,326995622	↑ Ta
	Coagulation factor XII	FA12_HUMAN	F12	0,00302159	1,391945692	↑ Ta
	Complement C1r subcomponent	C1R_HUMAN	C1R	0,00303922	1,280967713	↑ Ta
	Vitamin D-binding protein	VTDB_HUMAN	GC	0,003928	1,340366003	↑ Ta
	Complement component C6	CO6_HUMAN	C6	0,0042717	1,446886498	↑ Ta
	Complement component C8 beta chain	CO8B_HUMAN	C8B	0,00538557	1,255996294	↑ Ta
	Hemoglobin subunit alpha	HBA_HUMAN	HBA1	0,00590282	5,020407249	↑ Ta
	Lipopolysaccharide-binding protein	LBP_HUMAN	LBP	0,00680537	1,634749119	↑ Ta
	Galectin-3-binding protein	LG3BP_HUMAN	LGALS3BP	0,00753614	2,016590504	↑ Ta
	Inter-alpha-trypsin inhibitor heavy chain H1	ITIH1_HUMAN	ITIH1	0,00788349	0,719608487	↑ Ta

Complement factor I	CFAI_HUMAN	CFI	0,00810041	1,222227898	↑ Ta
Immunoglobulin lambda variable 3-27	LV327_HUMAN	IGLV3-27	0,01005932	1,783180848	↑ Ta
Hemoglobin subunit beta	HBB_HUMAN	HBB	0,01030231	4,673494773	↑ Ta
<b>Serum amyloid A-4 protein</b>	<b>SAA4_HUMAN</b>	<b>SAA4</b>	<b>0,01145609</b>	<b>2,751315105</b>	<b>↑ Ta</b>
<b>Apolipoprotein C-II</b>	<b>APOC2_HUMAN</b>	<b>APOC2</b>	<b>0,01459098</b>	<b>2,018908776</b>	<b>↑ Ta</b>
Alpha-1-antichymotrypsin	AACT_HUMAN	SERPINA3	0,01546691	5,505121842	↑ Ta
C4b-binding protein alpha chain	C4BPA_HUMAN	C4BPA	0,01766023	1,267495989	↑ Ta
Alpha-1B-glycoprotein	A1BG_HUMAN	A1BG	0,03046776	1,640307834	↑ Ta
Alpha-1-antitrypsin	A1AT_HUMAN	SERPINA1	0,03633694	3,239474829	↑ Ta
Ceruloplasmin	CERU_HUMAN	CP	0,03816982	1,652775639	↑ Ta
Immunoglobulin heavy variable 3-30-5	HV335_HUMAN	IGHV3-35	0,04091296	1,749806744	↑ Ta
<b>Plasma kallikrein</b>	<b>KLKB1_HUMAN</b>	<b>KLKB1</b>	<b>0,04413498</b>	<b>1,172777632</b>	<b>↑ Ta</b>
Complement factor H	CFAH_HUMAN	CFH	0,04493203	1,213794163	↑ Ta
<b>Carboxypeptidase N catalytic chain</b>	<b>CBPN_HUMAN</b>	<b>CPN1</b>	<b>9,52E-07</b>	<b>1,569696866</b>	<b>↑ Control</b>
<b>Apolipoprotein M</b>	<b>APOM_HUMAN</b>	<b>APOM</b>	<b>9,18E-06</b>	<b>1,65564258</b>	<b>↑ Control</b>
<b>Carboxypeptidase N subunit 2</b>	<b>CPN2_HUMAN</b>	<b>CPN2</b>	<b>1,14E-05</b>	<b>1,479498919</b>	<b>↑ Control</b>
<b>Alpha-2-HS-glycoprotein</b>	<b>FETUA_HUMAN</b>	<b>AHSG</b>	<b>3,36E-05</b>	<b>1,672329927</b>	<b>↑ Control</b>
<b>Antithrombin-III</b>	<b>ANT3_HUMAN</b>	<b>SERPINC1</b>	<b>0,00012924</b>	<b>1,410236969</b>	<b>↑ Control</b>
<b>N-acetylmuramoyl-L-alanine amidase</b>	<b>PGRP2_HUMAN</b>	<b>PGLYRP2</b>	<b>0,00046273</b>	<b>1,601708127</b>	<b>↑ Control</b>
<b>Mannan-binding lectin serine protease 1</b>	<b>MASP1_HUMAN</b>	<b>MASP1</b>	<b>0,0005914</b>	<b>1,440252665</b>	<b>↑ Control</b>

	<b>Serum paraoxonase/arylesterase 1</b>	PON1_HUMAN	PON1	0,00144113	1,402785174	↑ Control
	<b>Prothrombin</b>	THRB_HUMAN	F2	0,00196398	1,299723373	↑ Control
	<b>Insulin-like growth factor-binding protein complex acid labile subunit</b>	ALS_HUMAN	IGFALS	0,00282756	1,291383968	↑ Control
	<b>Vitamin K-dependent protein S</b>	PROS_HUMAN	PROS1	0,00653335	1,241725216	↑ Control
	<b>Alpha-2-antiplasmin</b>	A2AP_HUMAN	SERPINF2	0,00979701	1,476811908	↑ Control
	<b>Fibronectin</b>	FINC_HUMAN	FN1	0,01079141	1,357224248	↑ Control
	<b>Plasma protease C1 inhibitor</b>	IC1_HUMAN	SERPING1	0,01147388	1,316405301	↑ Control
	<b>Complement C2</b>	CO2_HUMAN	C2	0,01487246	1,228505056	↑ Control
	<b>Sex hormone-binding globulin</b>	SHBG_HUMAN	SHBG	0,03363129	1,440623383	↑ Control