

## **Supplementary materials**

# **Dispersion of TiO<sub>2</sub> nanoparticles improves burn wound healing and tissue regeneration through specific interaction with blood serum proteins**

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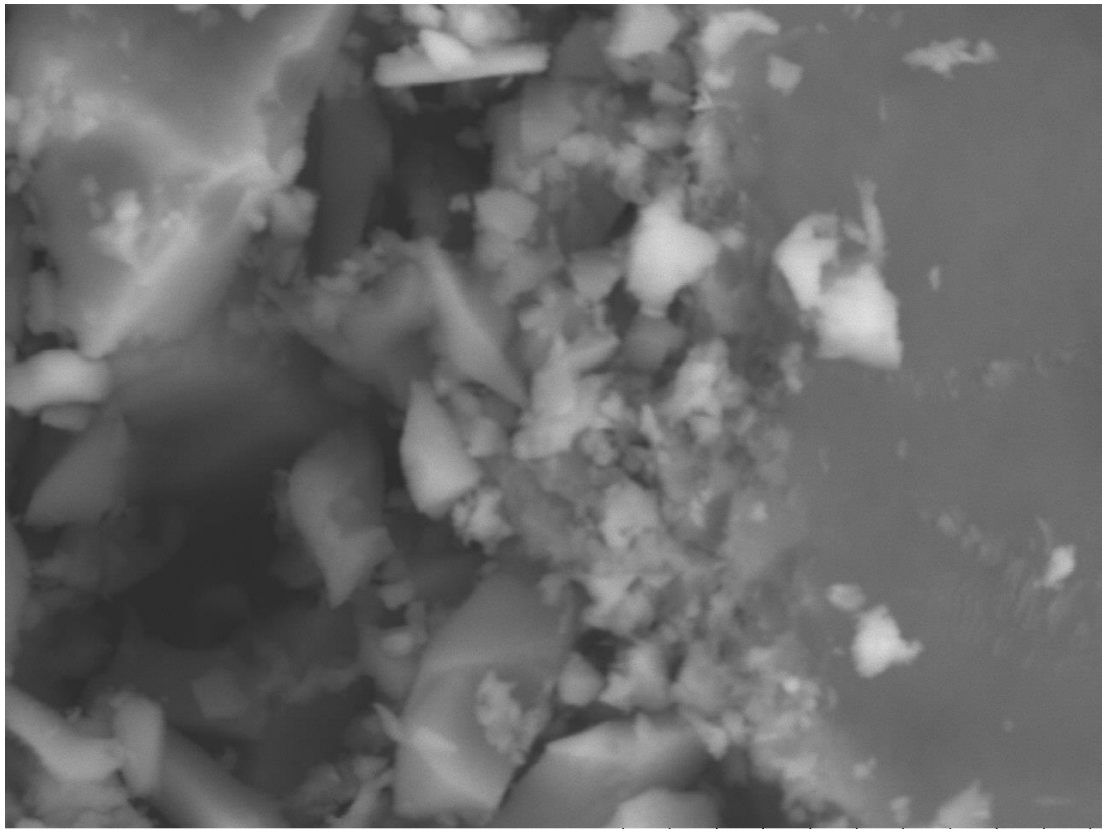
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10 um

Figure FS1. SEM view of the vacuum dried original TiO<sub>2</sub> sol diluted by isotonic NaCl solution 1:1 by volume.

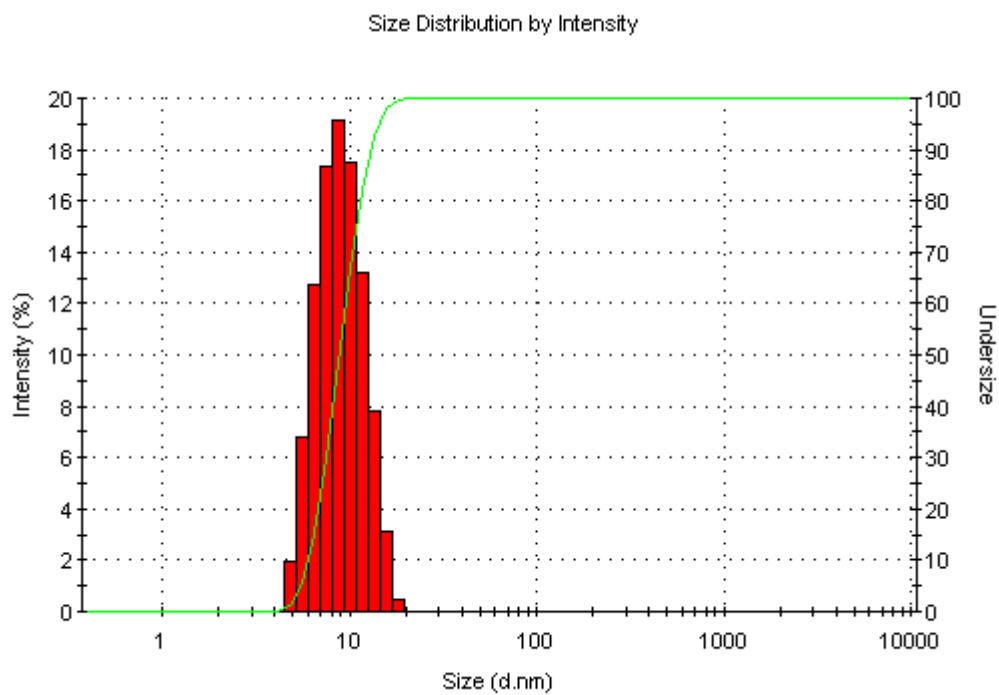


Figure FS2 Size distribution of the TiO<sub>2</sub> nanoparticles in the sol diluted by isotonic NaCl solution 1:1 by volume.

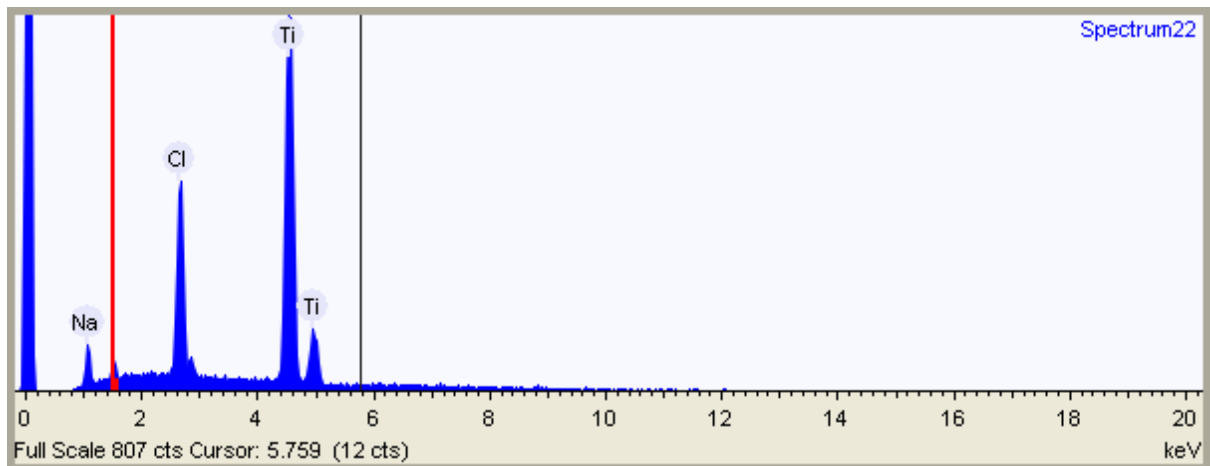


Figure FS3. EDS spectrum of the vacuum dried original TiO<sub>2</sub> sol diluted by isotonic NaCl solution 1:1 by volume.

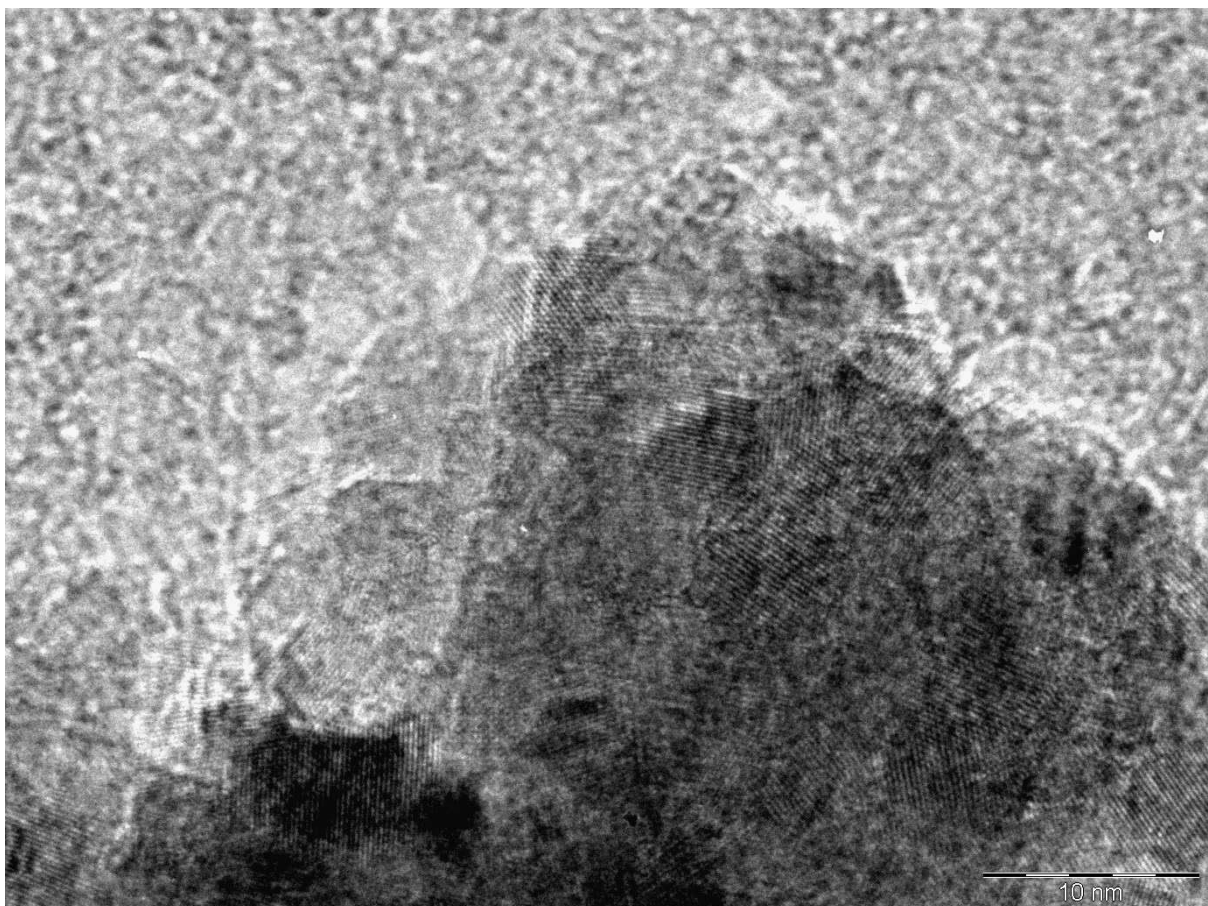


Figure FS4. TEM view of the TiO<sub>2</sub> nanoparticles in an air-dried droplet of the sol.

Table TS1 Results of EDS analysis with normalized content of all identified elements

**TiO<sub>2</sub> coating on a blood clot**

Element	Weight %
Chlorine	0.9
Potassium	1.0
Titanium	98.1

**Inner part of the TiO<sub>2</sub> coated blood clot**

Element	Weight %
Sodium	1.9
Magnesium	6.1
Phosphorus	13.3
Sulfur	44.7
Potassium	20.6
Calcium	2.2
Titanium	2.5
Iron	8.6

Table TS2 Wound size development in the % of the initial size.

Group 1

Day	Animal 1	Animal 2	Animal 3
1	100	100	100
2	95	81	87
3	82	73	79
4	60	55	51
7	45	37	37
8	31	25	25
9	23	20	22
10	18	18	14
11	10	10	10
12	5	7	7
14	1	3	4
15	1	1	2
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0

Group 2

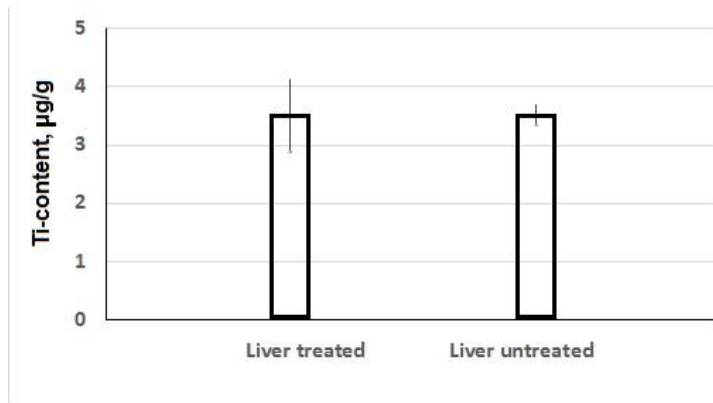
Day	Animal 4	Animal 5	Animal 6
1	100	100	100
2	85	77	80
3	66	60	63
4	59	52	55
7	30	30	33
8	23	29	21
9	18	19	20
10	16	13	10
11	7	10	9
12	2	5	7
14	0	2	4
15	0	0	1
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0

### Group 3

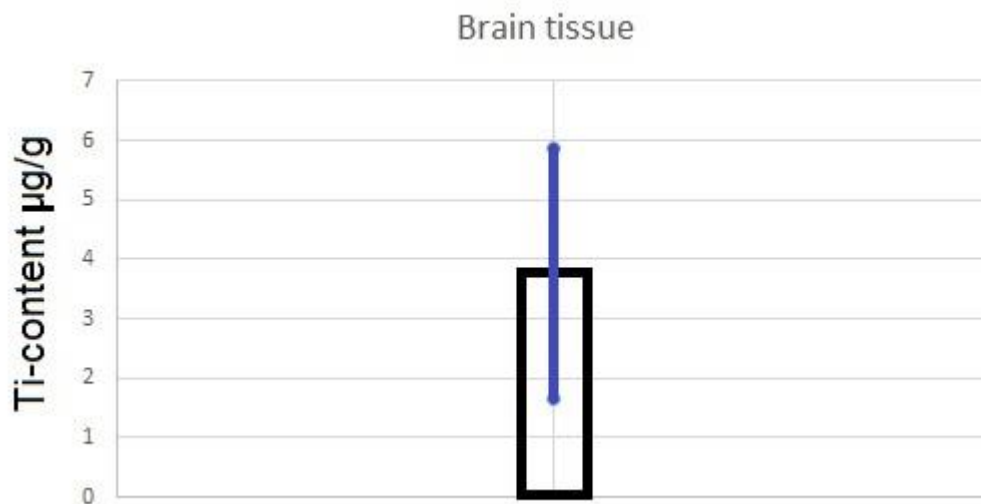
Day	Animal 7	Animal 8	Animal 9
1	100	100	100
2	99	95	99
3	89	82	88
4	86	80	70
7	77	75	65
8	55	39	40
9	36	32	34
10	27	20	24
11	15	12	18
12	11	9	10
14	6	2	3
15	3	1	1
16	1	0	0
17	0,5	0	0
18	0	0	0
19	0	0	0

### Group 4

day	Animal 10	Animal 11	Animal 12
1	100	100	100
2	95	89	92
3	85	79	75
4	70	61	63
7	55	41	54
8	40	31	37
9	23	22	30
10	20	9	19
11	12	6	14
12	5	2	11
14	1	1	6
15	0,5	0	2
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0



**Figure FS5.** Concentrations of TiO<sub>2</sub> in the liver of the rats treated and untreated (control) by nano dispersion measured on the day 28 from the start in a repeated experiment



**Figure FS6.** Concentrations of TiO<sub>2</sub> in the brain tissue of the rats treated with titania. The observed value of  $3.77 \pm 2.11$  µg/g is well corresponding to that generally observed in rats in this kind of tissue (see, for example, I.Grissa et al. *Environ Sci Pollut Res*, **2016**, 23, 20205-20213; X.Y. Gao, *Biol Trace Elem Res*, **2011**, 143, 1616-1628; H.B. Shi et al. *Particle & Fibre Toxicol*, **2013**, 10, 15 (1-33). doi: 10.1186/1743-8977-10-15).