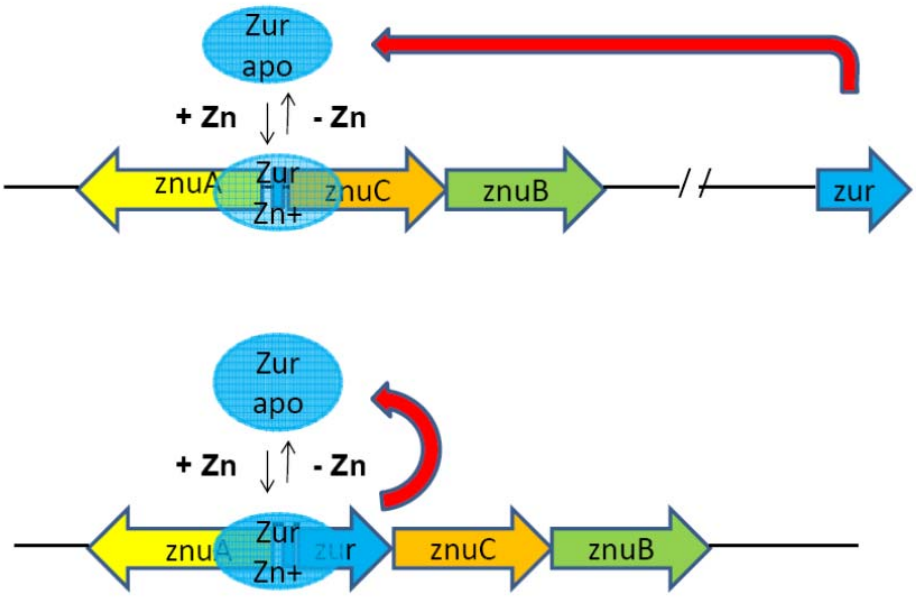
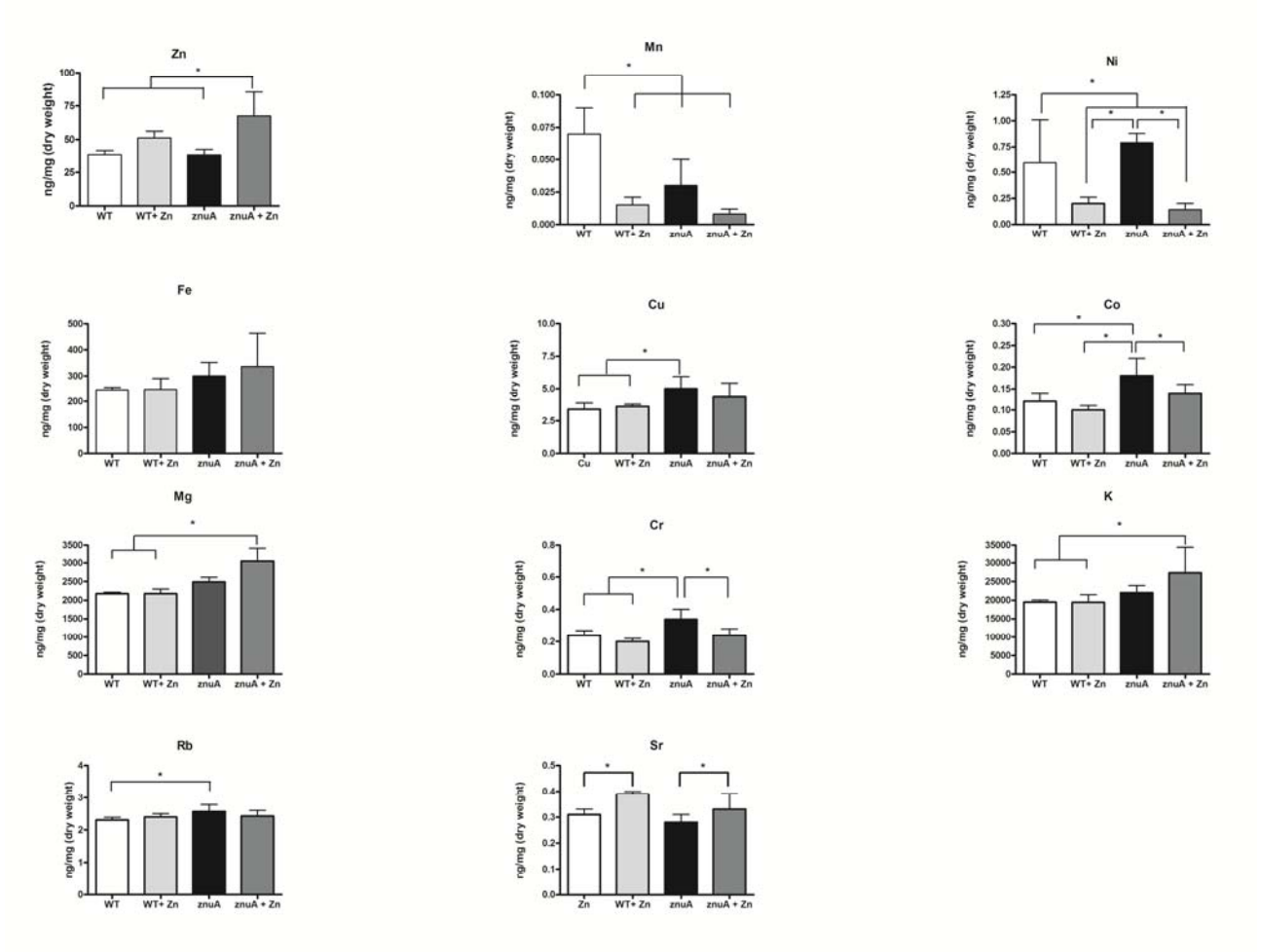
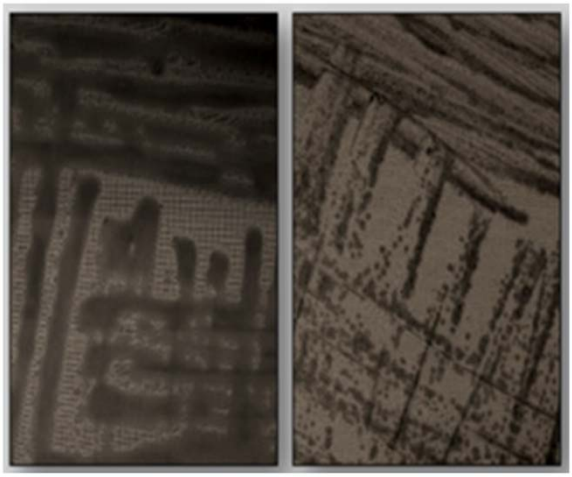
Electronic Supplementary Material (ESI) for Metallomics.



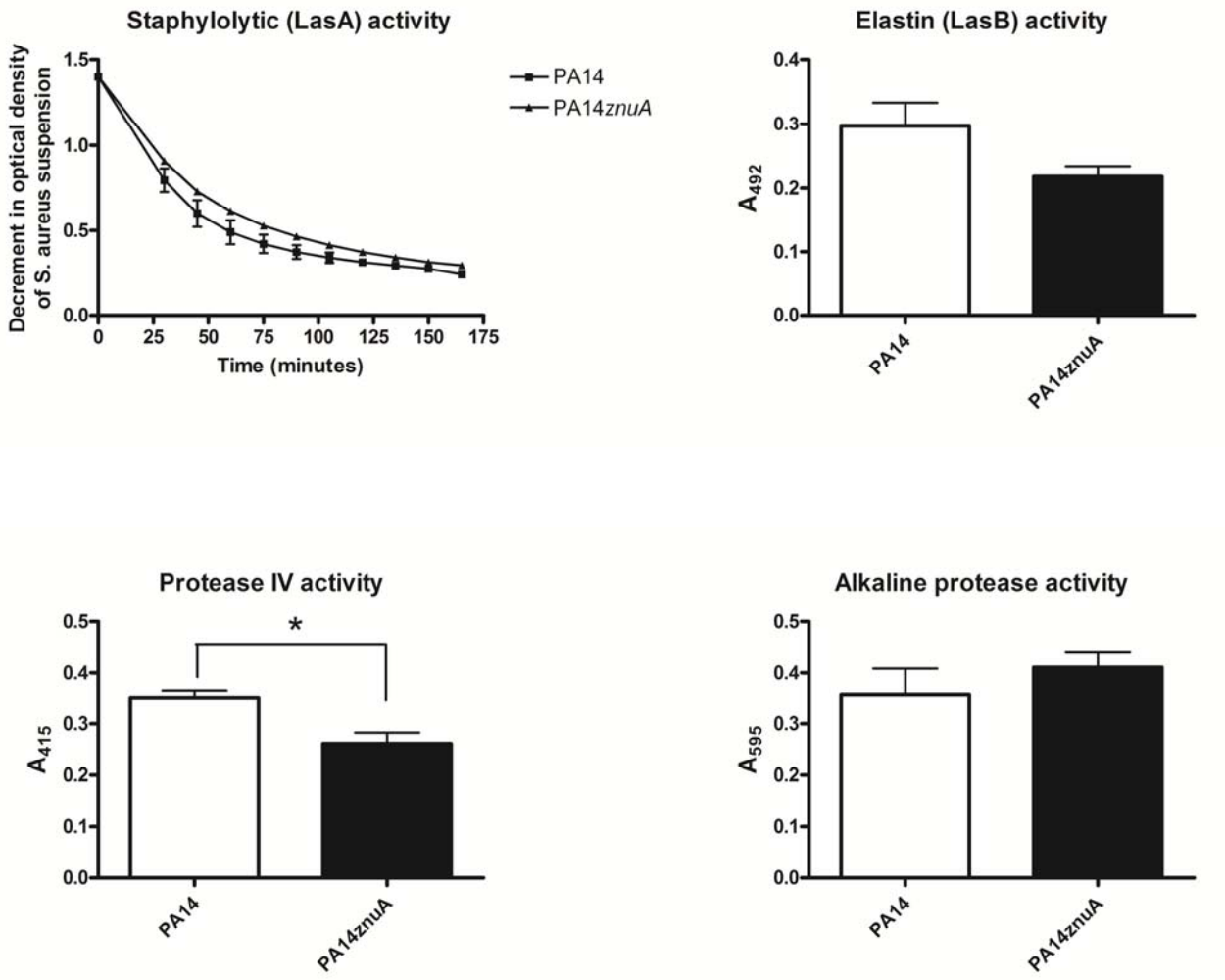
Suppl. Figure 1. **Variations in the organization of the *znuABC* operon suggest differences in gene regulation. A) Typical organization of the *znuABC* operon.** In most bacteria the gene encoding for the transcriptional regulator Zur is located outside the *znuABC* operon, usually in a distinct chromosomal location. This kind of organization favors a tight regulation of *znuABC* and of other Zur-dependent genes through Zn-dependent conformational changes of Zur. **B) Organization of the *znuABC* operon in *P. aeruginosa***. In *Pseudomonas* spp the *zurR* gene (*np20*) is located within the *znuABC* operon and Zur regulates its own expression. The need to produce Zur molecules to control other Zur-dependent genes suggests leaky control of *znuABC* also occurs in the presence of sufficient zinc.



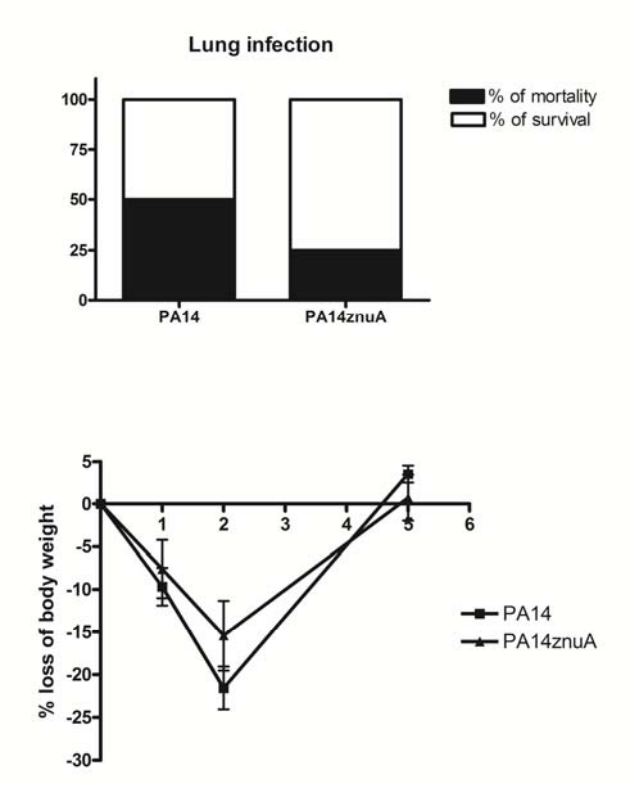
Suppl. Figure 2. Elements content of *P. aeruginosa* PA14 and of its isogenic *znuA* mutant grown overnight in VB-MM and in VB-MM supplemented with 3 µM $ZnSO_4$**.** Data are mean concentrations from 4 independent bacterial cultures and bars indicate mean standard deviations. * $p < 0.05$.



Suppl. Figure 3. Differences in alginate production between wild type and *znuA* PA14 strains grown on PIA agar plates supplemented with ammonium metavanadate. Plates were incubated for 48 hours at 37°C



Suppl. Figure 4. Protease activity in the supernatants from wild type and *znuA* PA14 strains grown in LB medium. A) Las A; **B)** LasB; **C)** Protease IV; **D)** Alkaline protease. Data are means ± SD of three independent experiments. * $p < 0.05$



Suppl. Figure 5. Lung infections. A) Survival of C57Bl/6 mice infected with $2x10^6$ CFU of wild type PA14 or of the *znuA* mutant strains. **B)** Variations in body weight of lung infected C57Bl/6. Each group included 4 animals.

Supplementary Table 1. Element concentrations in *Pseudomonas aeruginosa* PA14 wild type and *znuA* strains grown in Vogel Bonner minimal medium (MM) or minimal medium added with zinc (MM + Zn) and significant differences assessed by two-factor ANOVA. Data are mean concentrations expressed in ng mg^{-1} cell (dry weigth), standard deviations (SD), and p values from two-factor ANOVA followed by Fisher LSD post-hoc test. p values less than 0.050 and 0.100 are shown in bold and italics, respectively.

	PA14 MM		PA14 MM + Zn		znuA MM		znuA _MM + Zn		Two Factor ANOVA, p			Fisher post-hoc test, p					
Element	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Strain	Zinc	Strain*Zinc	PA14MM vs PA14MMZn	PA14MM vs znuA-/-_MM	PA14MM vs znuA-/-_MMZn	PA14MMZn vs znuA-/-_MM	PA14MMZn vs znuA-/-_MMZn	znuA-/-_MM vs znuA-/-_MMZn
Mg	2177	73	2177	225	2489	244	3047	731	**0.015**	0.280	0.175	0.836	0.311	**0.013**	0.258	**0.013**	*0.084*
K	19528	492	19439	2025	22011	1893	27339	7097	**0.021**	0.282	0.170	0.823	0.391	**0.017**	0.314	**0.016**	*0.082*
Cr	0.24	0.03	0.23	0.02	0.34	0.06	0.24	0.04	**0.037**	**0.021**	0.054	0.723	**0.007**	0.819	**0.005**	0.886	**0.004**
Mn	0.07	0.02	0.015	0.006	0.03	0.02	0.009	0.004	**0.041**	**0.001**	0.154	**0.001**	**0.016**	**0.0003**	0.126	0.603	**0.037**
Fe	246	9	248	42	300	51	336	127	*0.070*	0.610	0.647	0.970	0.305	0.101	0.321	0.108	0.496
Co	0.12	0.02	0.12	0.01	0.18	0.04	0.14	0.02	**0.021**	0.167	0.089	0.797	**0.007**	0.396	**0.016**	0.591	**0.032**
Ni	0.6	0.4	0.15	0.06	0.79	0.09	0.14	0.06	0.457	**0.001**	0.356	**0.035**	0.228	**0.019**	**0.004**	0.898	**0.002**
Cu	3.4	0.5	3.6	0.2	5.0	0.9	4	1	**0.016**	0.583	0.321	0.753	**0.015**	0.120	**0.040**	0.242	0.263
Zn	39	3	51	5	39	4	68	18	0.104	**0.003**	0.097	0.196	0.978	**0.002**	0.189	**0.033**	**0.002**
Rb	2.31	0.08	2.4	0.1	2.6	0.2	2.4	0.2	*0.053*	0.512	0.321	0.810	**0.038**	0.296	*0.078*	0.457	0.232
Sr	0.31	0.02	0.39	0.01	0.28	0.03	0.33	0.06	**0.039**	**0.011**	0.581	**0.032**	0.218	0.621	**0.004**	*0.073*	*0.097*