Supplementary Informations

Development of Dual Acting Selenium-Doped Hydroxyapatite Nanoparticles with Platinum-Bisphosphonate Complexes for Bone Cancer Therapy

Alessandra Barbanente,[a] Anna Maria Di Cosola,[a] Federica Rizzi,[b,c] Rachele Castaldo,[d] Elisabetta Fanizza,[a,c] Nicoletta Depalo,[b,c] Roberto Comparelli,[b,c] Paride Papadia,[e] Concetta Pacifico,[a] Mauro Niso,[f] Nicola Margiotta.[a,*]

[a]Department of Chemistry, University of Bari Aldo Moro, via E. Orabona 4, 70126 Bari, Italy;

[b]Institute for Chemical and Physical Processes (IPCF)-CNR SS Bari, via Orabona 4, 70126, Bari, Italy;

[c]National Interuniversity Consortium of Materials Science and Technology (INSTM), Bari Research Unit, 70126 Bari, Italy;

[d]Institute of Polymers, Composites and Biomaterials (IPCB)-CNR, via Campi Flegrei 34, 80078 Pozzuoli, Naples, Italy;

[e]Department of Biological and Environmental Sciences and Technologies (DiSTeBA), University of Salento, 73100 Lecce, Italy;

[f]Department of Pharmacy-Pharmaceutical Sciences, University of Bari Aldo Moro, via Orabona 4, 70126 Bari, Italy.

Table S1: EDX analysis of HA, HASe2.5%, HASe5% and HASe7.5%

HA	Atomic (%)	Weight (%)
C	11.74±0.04	6.40±0.23
O	56.27±0.07	40.87±0.29
P	13.27±0.04	18.66±0.12
Ca	18.72±0.05	34.07±0.19

HASe2.5%	Atomic (%)	Weight (%)
C	11.88±0.03	6.48±0.23
O	56.65±0.08	41.17±0.30
P	12.75±0.05	17.94±0.12
Ca	18.53±0.02	33.74±0.19
Se	0.19±0.01	0.67±0.05

HASe5%	Atomic (%)	Weight (%)
C	12.13±0.03	6.92±0.22
O	61.28±0.06	46.57±0.25
P	11.29±0.03	16.62±0.10
Ca	14.88±0.04	28.32±0.15
Se	0.42±0.01	1.57±0.06

HASe7.5%	Atomic (%)	Weight (%)
C	10.73±0.03	5.88±0.23
O	59.15±0.08	43.18±0.27
P	12.27±0.02	17.34±0.11
Ca	17.31±0.04	31.65±0.18
Se	0.54±0.01	1.95±0.06

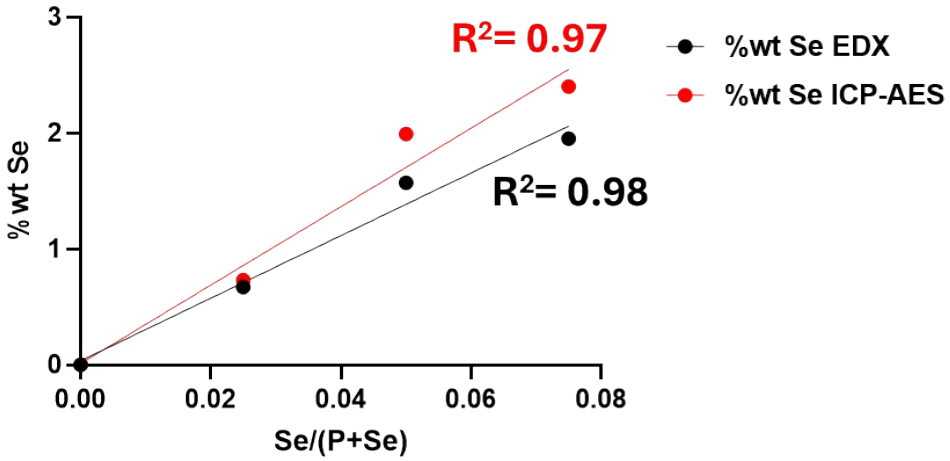

Figure S1: Correlation between the theoretical Se/(Se+P) ratio and the experimental selenium content (wt%) in HASe samples determined by EDX (black) and ICP-AES (red).

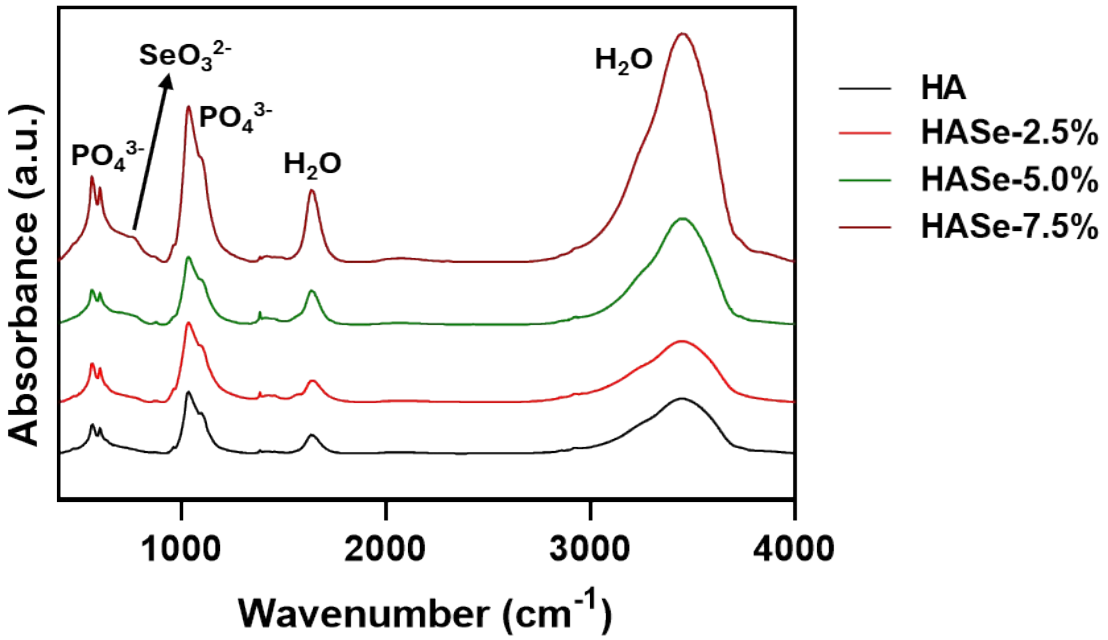

Figure S2: FTIR spectra of HASe samples.

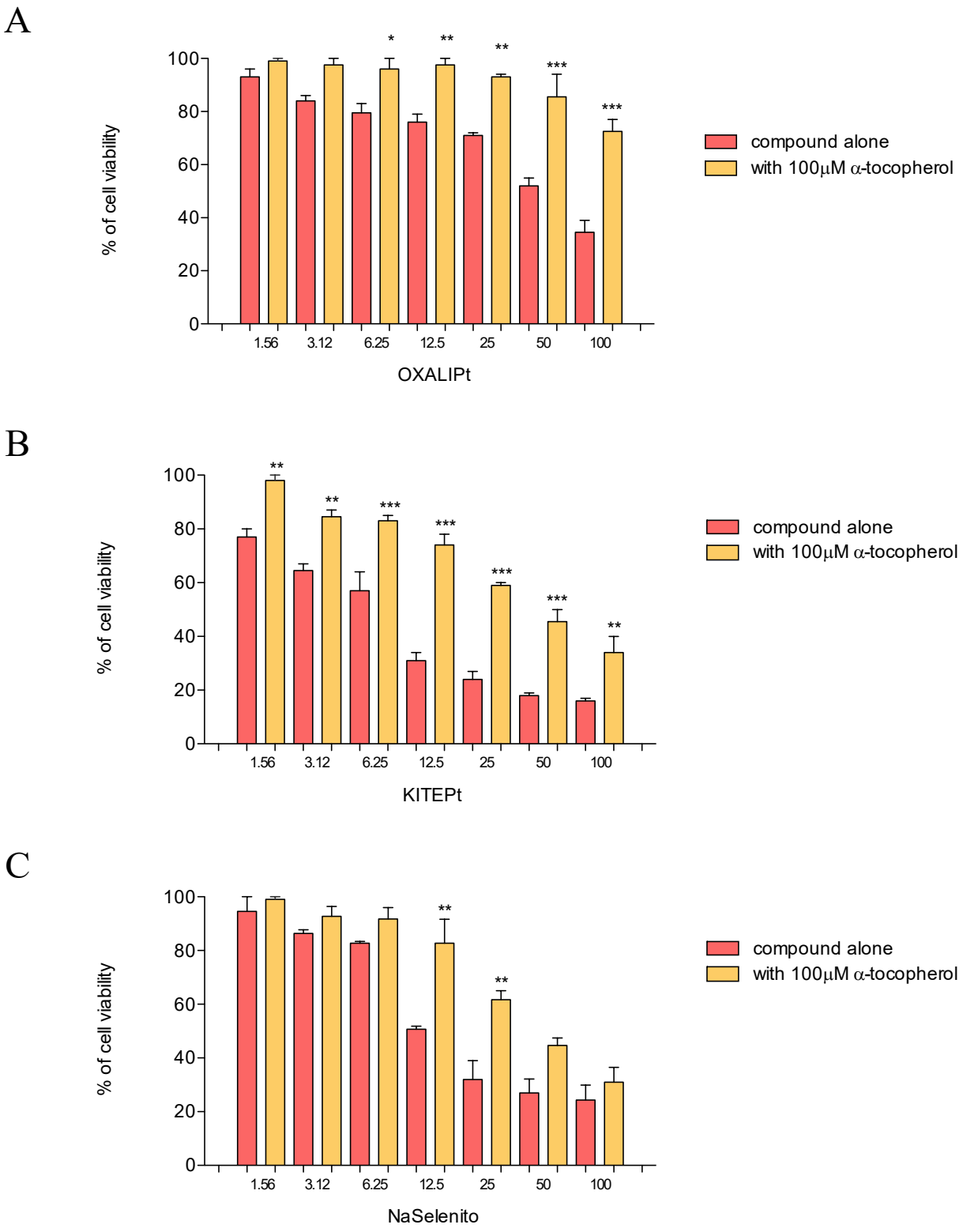

Figure S3. Viability of MCF7wt cells after 48 hours of exposure to Oxaliplatin **(A),** Kiteplatin **(B)** and Na_2SeO_3 **(C)** at increasing concentrations (1.56–100 µM), in the presence or absence of the antioxidant α-tocopherol (100 µM). Cell viability was assessed by MTT assay. Each bar represents the mean ± SD of three experiments in triplicate: one-wayANOVA followed by Bonferroni's Multiple

Comparison Test * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ vs respective test compound without 100μM α-tocopherol.