

Figure 1

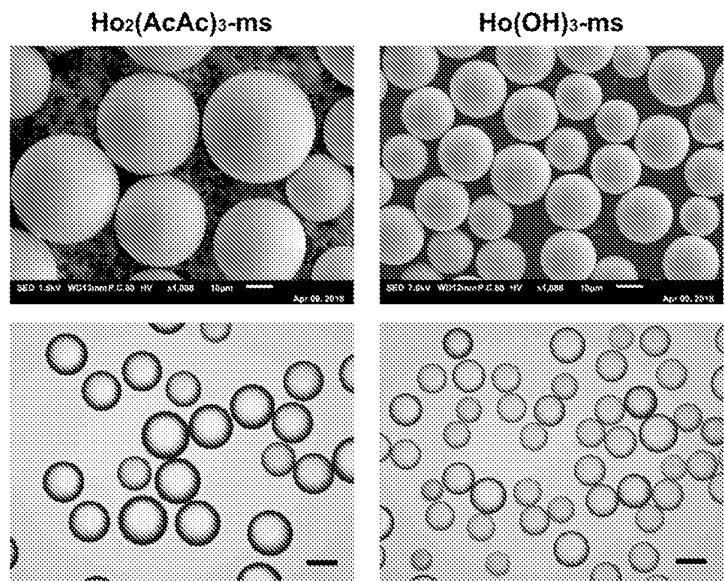


Figure 2

	$\varnothing$ (μm)	ρ (g/cm^3)
$\text{Ho}_2(\text{AcAc})_3\text{-ms}$	32.6 ± 5.2	1.7
$\text{Ho}(\text{OH})_3\text{-ms}$	25.1 ± 3.5	3.6

Figure 3

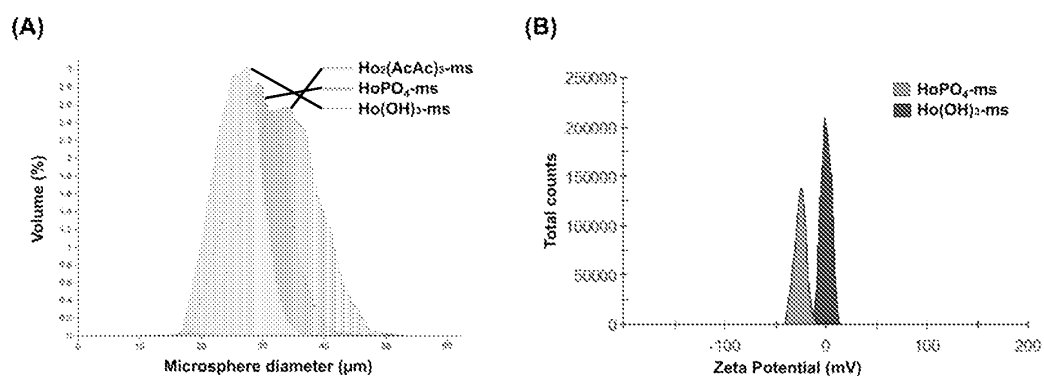


Figure 4

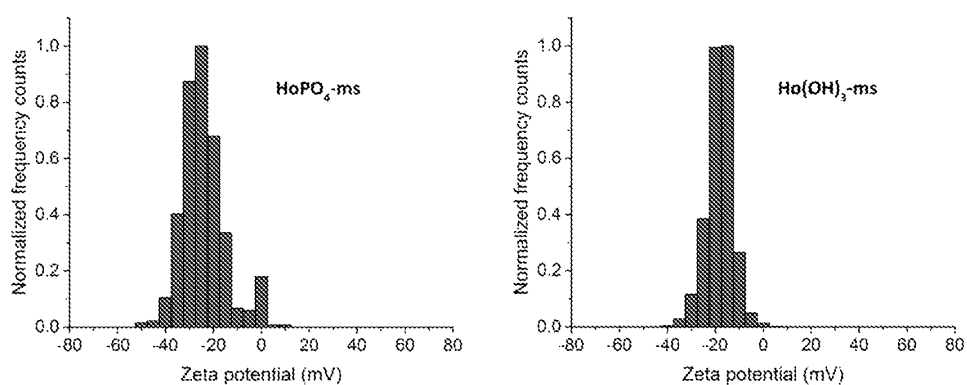


Figure 5

Calculated chemical formula	$\text{Ho}_2(\text{AcAc})_3\text{-ms}$		$\text{Ho}(\text{OH})_3\text{-ms}$	
	$\text{Ho}_2(\text{AcAc})_3 \cdot 2 \text{H}_2\text{O}$		$\text{Ho}(\text{OH})_3 \cdot 0.5 \text{H}_2\text{O}$	
Element	Calculated	Measured	Calculated	Measured
C ¹	27.0	27.2	-	0.67
H ¹	4.2	4.58	1.78	1.76
O ²	19.2	20.3	24.9	24.5
Ho ³	49.5	47.9	73.3	73.1
Ho ⁴	49.5	47.0	73.3	72.4

¹ CHNS analyzer
² %O = 100 - (%C + %H + %P + %Ho)
³ Atomic Absorption Spectroscopy
⁴ Inductively Coupled Plasma - Optical Emission spectroscopy

Figure 6

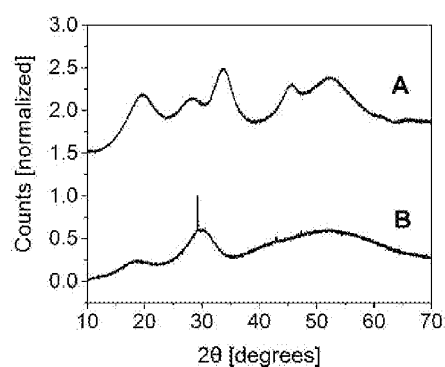


Figure 7

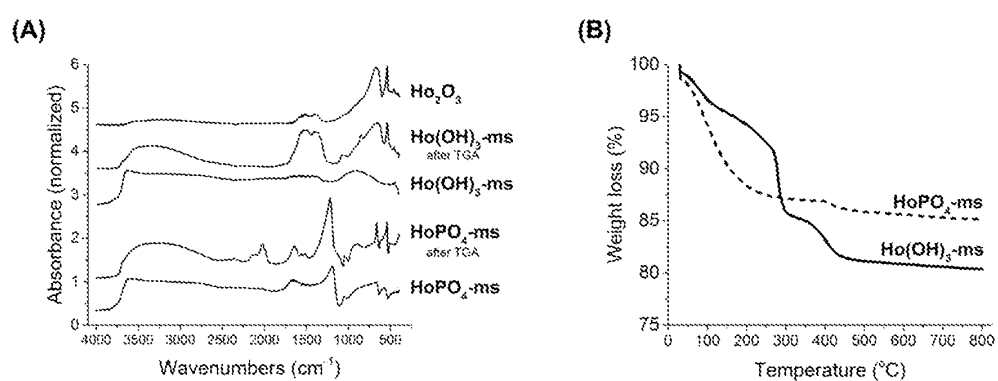


Figure 8

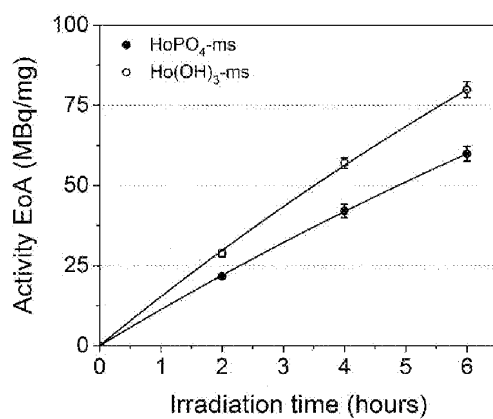


Figure 9

	Irradiation time (hours)	Total gamma dose (kGy)	Temperature measured (°C)	Amount of ms (mg)	Activity at EoB (GBq)	Activity at EoB (MBq/mg)
HoPO ₄ -ms	2	596-624	49	275	5.8	21.1
			49	278	6.2	22.3
	4	1192-1248	54	292	11.7	40.0
			54	261	11.5	44.1
	6	1788-1872	60	279	16.1	57.7
			60	278	17.3	62.2
Ho(OH) ₃ -ms	2	596-624	43	259	7.2	27.8
			43	263	7.8	29.7
	4	1192-1248	54	251	13.9	55.4
			54	263	15.4	58.6
	6	1788-1872	60	257	19.9	77.4
			60	254	20.9	82.3

Figure 10

	HoPO ₄ -ms			Ho(OH) ₃ -ms		
	4 hours irradiation			4 hours irradiation		
	Diam. (μm)	15-50 μm (%)	Ho rel. (%)	Diam. (μm)	15-50 μm (%)	Ho rel. (%)
1 h	27.5 ± 0.1	99.8 ± 0	< 0.004	23.5 ± 0.2	99.8 ± 0	< 0.004
24 h	27.0 ± 0.2	99.8 ± 0	< 0.004	23.2 ± 0.1	99.8 ± 0	< 0.004
48 h	27.3 ± 0.1	99.8 ± 0.1	< 0.004	23.2 ± 0.1	99.8 ± 0.1	< 0.004
72 h	27.2 ± 0.2	99.8 ± 0.1	< 0.004	22.9 ± 0.2	99.8 ± 0.1	0.008 ± 0.002
	6 hours irradiation			6 hours irradiation		
	Diam. (μm)	15-50 μm (%)	Ho rel. (%)	Diam. (μm)	15-50 μm (%)	Ho rel. (%)
1 h	27.0 ± 0.3	99.8 ± 0.1	< 0.004	23.8 ± 0.2	99.8 ± 0.1	< 0.004
24 h	26.7 ± 0.1	99.8 ± 0.1	< 0.004	23.1 ± 0.2	99.8 ± 0.1	< 0.004
48 h	26.9 ± 0.2	99.8 ± 0	< 0.004	23.4 ± 0.1	99.8 ± 0.1	< 0.004
72 h	27.0 ± 0.1	99.7 ± 0	< 0.004	22.9 ± 0.4	99.7 ± 0	0.05 ± 0.01

Figure 11

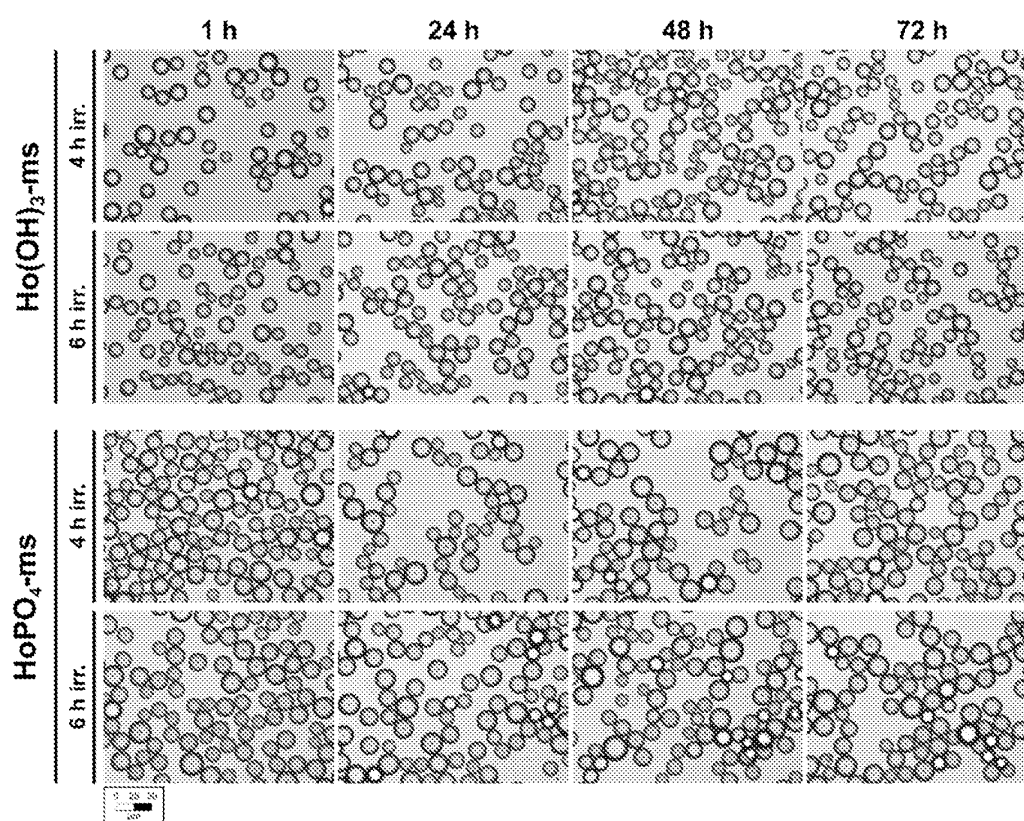


Figure 12

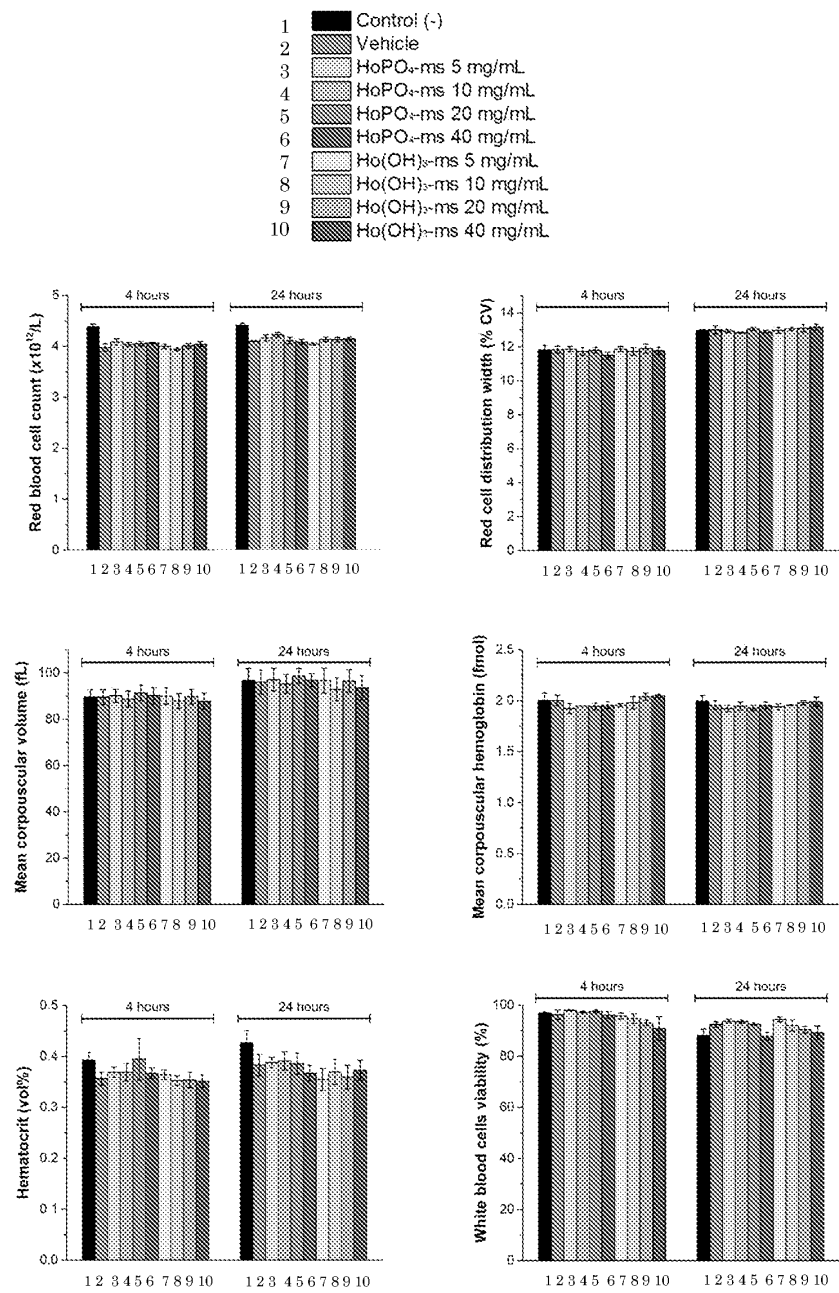


Figure 13

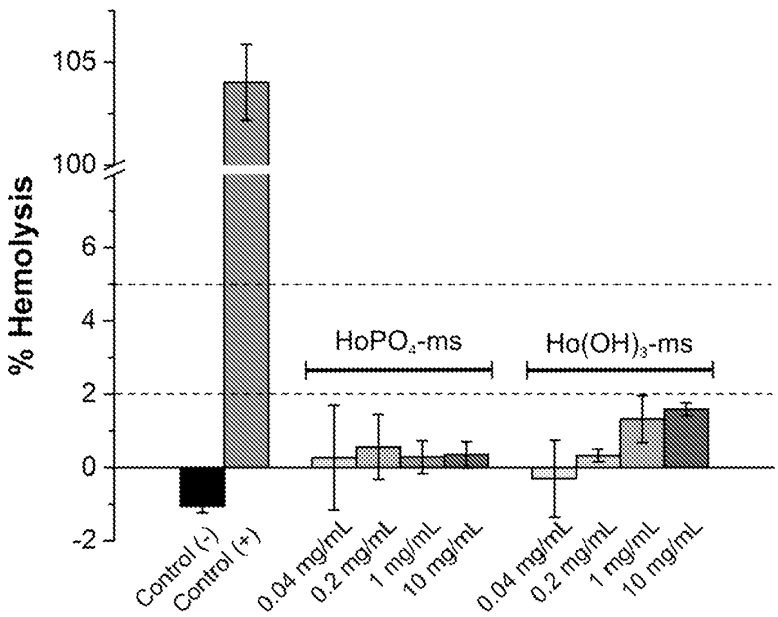


Figure 14

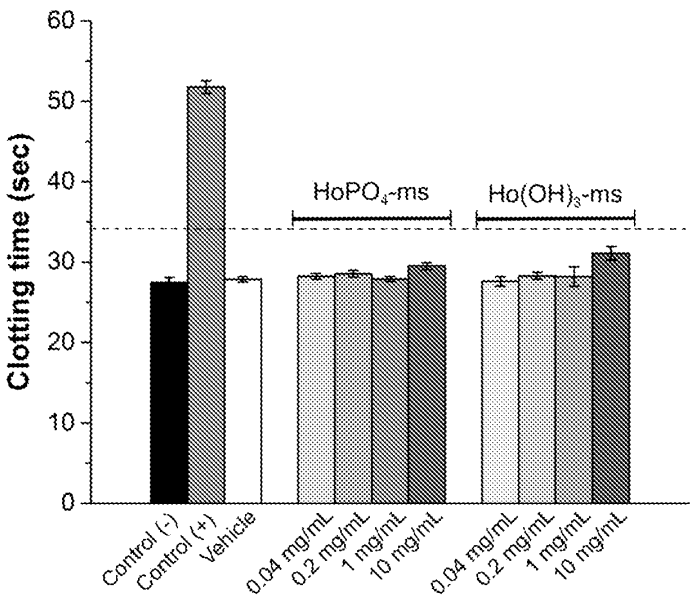


Figure 15

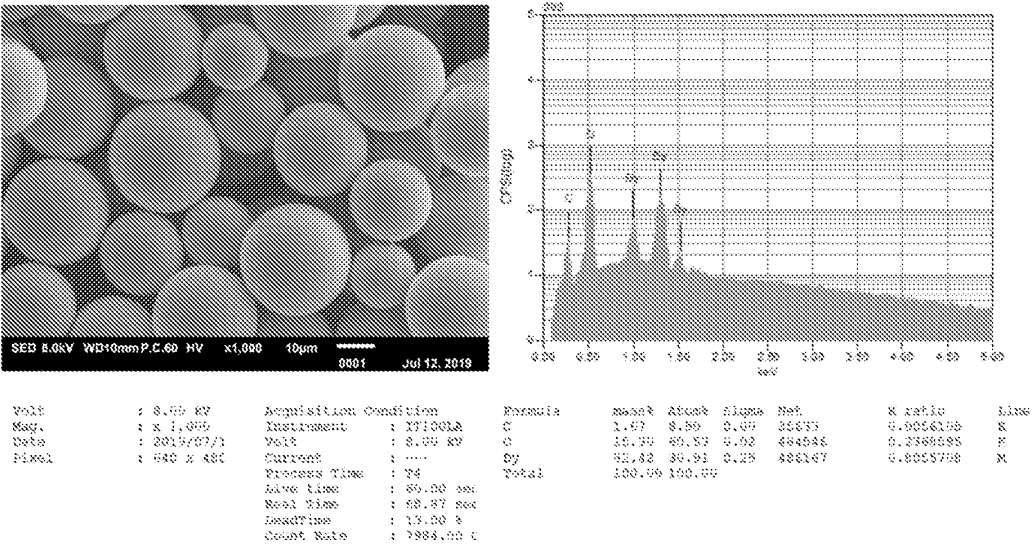


Figure 16

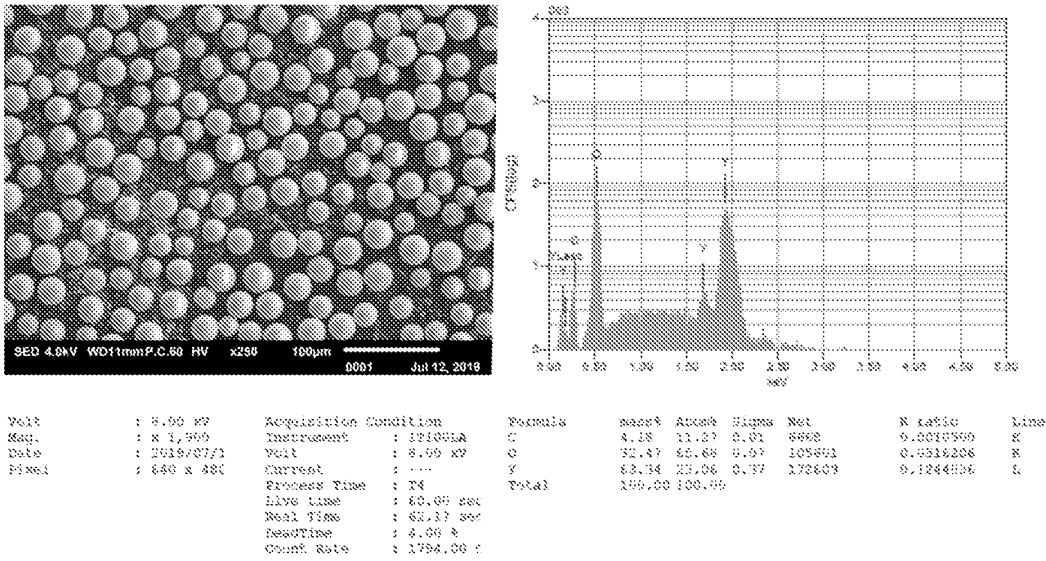


Figure 17

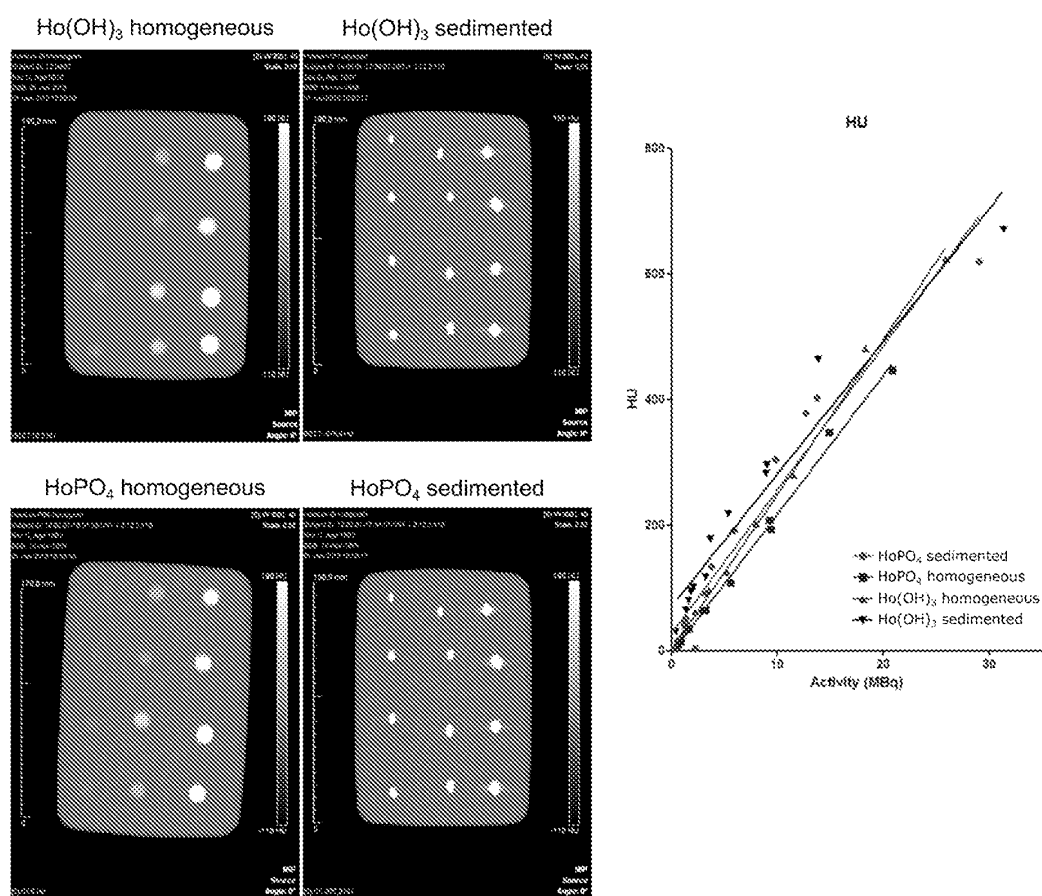


Figure 18

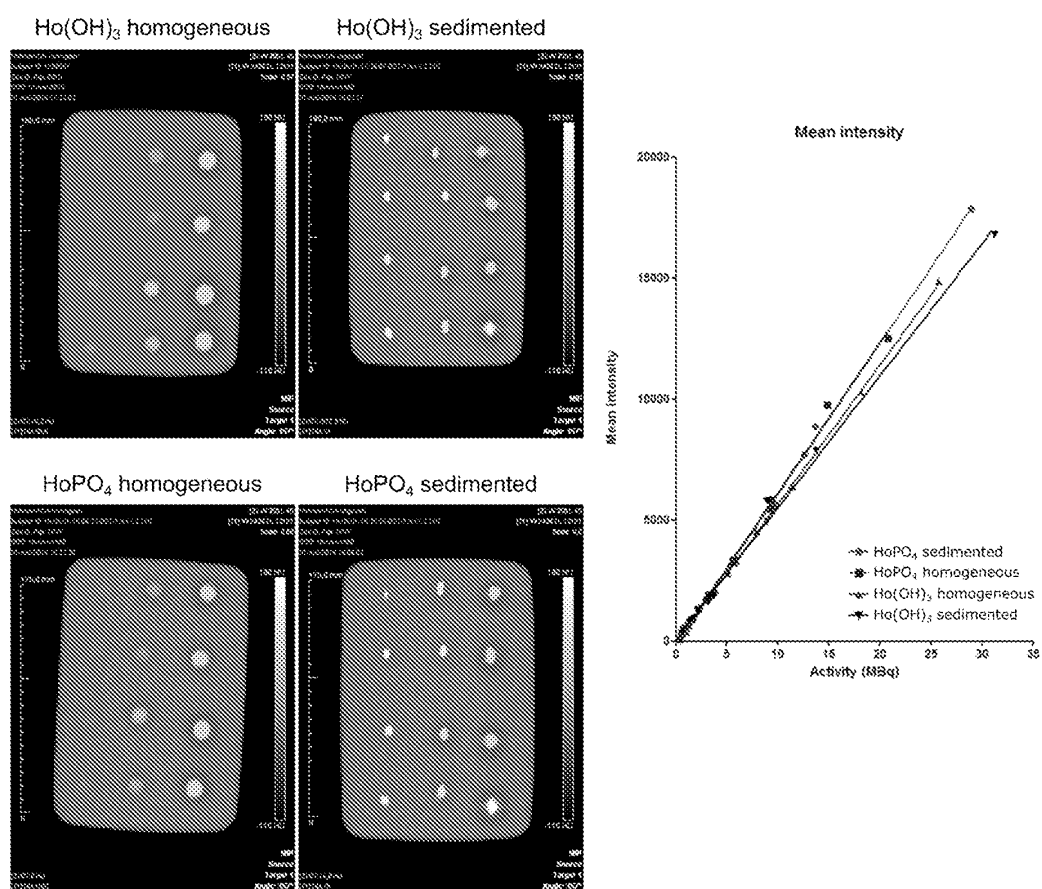


Figure 19

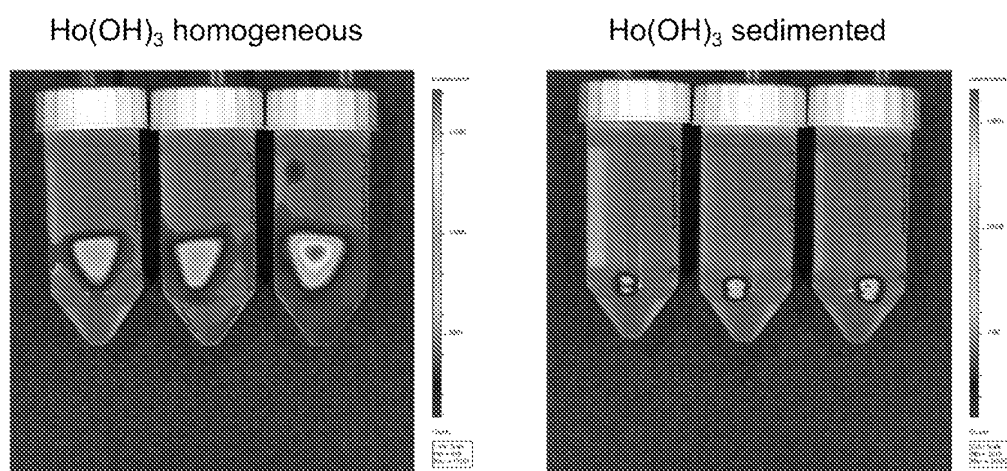


Figure 20