

**Supplementary table S4.** *Ex vivo* biodistribution of [<sup>131</sup>I]-2Rs15d and [<sup>131</sup>I]-control in mice with BT474/M1 xenografts (n = 3). Values are expressed as % IA/g, except for thyroid for which % IA was used. Radiation doses from 37 MBq of [<sup>131</sup>I]-2Rs15d were calculated using trapezoid integration of measured radionuclide activity in tissues of interest, and expressed in cGy.

Organ/ tissue	[ <sup>131</sup> I]-2Rs15d															[ <sup>131</sup> I]-control			[ <sup>131</sup> I]-2Rs15d cGy / 37 MBq										
	1h			3h			6h			24h			48h			72h				96h			120h			4h			
	Mean	±	SD	Mean	±	SD	Mean	±	SD	Mean	±	SD	Mean	±	SD	Mean	±	SD		Mean	±	SD	Mean	±	SD	Mean	±	SD	Mean
Lungs	0.94	±	0.17	0.30	±	0.11	0.19	±	0.04	0.05	±	0.02	0.02	±	0.01	0.01	±	0.002	0.02	±	0.01	0.01	±	0.003	0.45	±	0.37	26.66	
Heart	0.43	±	0.07	0.15	±	0.02	0.08	±	0.004	0.02	±	0.001	0.01	±	0.003	0.01	±	0.001	0.01	±	0.002	0.004	±	0.0003	0.09	±	0.01	11.50	
Liver	1.05	±	0.18	0.39	±	0.12	0.24	±	0.09	0.04	±	0.01	0.05	±	0.003	0.01	±	0.002	0.02	±	0.01	0.01	±	0.003	0.47	±	0.17	31.13	
Kidneys	55.63	±	8.47	12.50	±	2.73	7.15	±	1.95	0.94	±	0.52	0.52	±	0.13	0.24	±	0.14	0.13	±	0.06	0.09	±	0.02	6.79	±	2.19	835.96	
Stomach	0.94	±	0.39	0.71	±	0.76	0.12	±	0.06	0.01	±	0.01	0.01	±	0.004	0.01	±	0.002	0.01	±	0.01	0.004	±	0.001	0.14	±	0.08	24.94	
Pancreas	0.18	±	0.04	0.05	±	0.01	0.02	±	0.01	0.01	±	0.002	0.003	±	0.001	0.001	±	0.001	0.002	±	0.001	0.001	±	0.001	0.03	±	0.01	3.75	
Spleen	0.39	±	0.07	0.21	±	0.02	0.09	±	0.04	0.02	±	0.004	0.01	±	0.002	0.01	±	0.001	0.01	±	0.002	0.01	±	0.001	0.15	±	0.06	13.22	
Muscle	0.62	±	0.15	0.24	±	0.15	0.08	±	0.01	0.01	±	0.01	0.004	±	0.002	0.002	±	0.001	0.002	±	0.002	0.003	±	0.001	0.06	±	0.01	11.37	
Bone	1.00	±	0.08	0.53	±	0.30	0.28	±	0.20	0.04	±	0.01	0.02	±	0.01	0.02	±	0.01	0.02	±	0.01	0.01	±	0.01	0.24	±	0.09	32.24	
S intestines	0.37	±	0.09	0.58	±	0.58	0.16	±	0.01	0.01	±	0.003	0.004	±	0.001	0.01	±	0.01	0.003	±	0.001	0.002	±	0.001	0.07	±	0.03	20.79	
L intestines	0.30	±	0.12	0.36	±	0.34	0.10	±	0.02	0.01	±	0.01	0.004	±	0.002	0.01	±	0.004	0.02	±	0.03	0.002	±	0.001	0.10	±	0.01	15.79	
Blood	0.83	±	0.02	0.19	±	0.06	0.07	±	0.01	0.02	±	0.002	0.01	±	0.003	0.01	±	0.002	0.01	±	0.001	0.01	±	0.0003	0.06	±	0.01	14.72	
Uterus	1.10	±	0.21	0.02	±	0.01	0.34	±	0.38	0.02	±	0.003	0.01	±	0.002	0.01	±	0.002	0.01	±	0.002	0.004	±	0.001	0.13	±	0.04	23.90	
Thyroid*	0.01	±	0.002	0.001	±	0.001	0.001	±	0.0002	0.0001	±	0.0001	0.0001	±	0.0001	0.00001	±	0.0001	0.0001	±	0.0001	0.0001	±	0.0001	0.24	±	0.09	0.15	
Tumor	20.22	±	1.64	17.77	±	1.87	7.16	±	1.18	5.10	±	1.90	1.16	±	0.16	0.40	±	0.05	0.14	±	0.01	0.11	±	0.03	0.14	±	0.06	1188.34	