

**Supplementary table S5.** *Ex vivo* biodistribution 1 h after injecting [<sup>131</sup>I]-2Rs15d in mice with BT474/M1 xenografts that were pre-treated 72 h earlier with a 100-fold molar excess of trastuzumab, pertuzumab or a combination of both. Values are expressed as % IA/g, except for thyroid for which % IA was used. Data are presented as mean ± SD (n = 4). No significant differences in tumor targeting were observed (p = 0.62).

Organ/tissue	PBS			trastuzumab			pertuzumab			combination		
	Mean	±	SD	Mean	±	SD	Mean	±	SD	Mean	±	SD
Lungs	0.94	±	0.33	0.59	±	0.22	0.75	±	0.21	0.97	±	0.46
Heart	0.34	±	0.03	0.35	±	0.04	0.39	±	0.03	0.47	±	0.06
Liver	1.58	±	0.26	1.82	±	0.78	0.95	±	0.49	1.38	±	0.29
Stomach	0.54	±	0.15	0.58	±	0.19	0.51	±	0.19	0.87	±	0.28
Pancreas	0.13	±	0.03	0.14	±	0.01	0.21	±	0.14	0.18	±	0.01
Spleen	0.43	±	0.10	0.49	±	0.15	0.44	±	0.05	0.70	±	0.10
Muscle	0.53	±	0.16	0.87	±	0.70	0.34	±	0.06	0.87	±	0.53
Bone	0.95	±	0.19	0.78	±	0.06	1.14	±	0.46	1.10	±	0.10
S. intestines	0.27	±	0.10	0.25	±	0.06	0.24	±	0.08	0.45	±	0.10
L. intestines	0.32	±	0.14	0.16	±	0.03	0.25	±	0.12	0.41	±	0.09
Blood	0.77	±	0.11	0.57	±	0.06	0.66	±	0.14	0.82	±	0.09
Tumor	11.00	±	3.94	9.31	±	2.35	8.91	±	2.06	8.59	±	2.85