



Supplemental Fig. 1 Results from training and validation. (a) Convergence behavior of the MSE (average over all pixels and all training data) between DCNN estimated scatter projections and the simulated true scatter projections. (b) Profile across a typical scatter projection in the training data at epoch 100.

Supplemental Table 1. Lesion-to-normal liver count concentration ratio for the different 90Y SPECT reconstructions and 90Y PET. Patients were imaged soon after radioembolization with glass microspheres. The administered activity ranged from 1.0 to 3.9 GBq.

	Lesion-to-liver uptake ratio			
	90Y SPECT/CT with NO SC	90Y SPECT/CT with MC SC	90Y SPECT/CT with DCNN SC	90Y PET/CT
Patient 1				
Lesion 1 (28 mL)	4.5	7.1	7.5	6.9
Patient 2				
Lesion 1 (818 mL)	2.2	2.7	3.1	2.6
Lesion 2 (30 mL)	2.0	2.5	3.4	2.3
Lesion 3 (526 mL)	2.6	3.5	3.8	3.5
Lesion 4 (92 mL)	7.2	12.1	13.8	11.1
Patient 3				
Lesion 1 (6 mL)	2.4	3.9	4.8	4.0
Lesion 2 (4 mL)	0.3	0.1	0.02	0.02
Lesion 3 (317 mL)	3.2	5.2	5.3	5.6
Patient 4				
Lesion 1 (6 mL)	5.5	11.8	10.3	9.9
Patient 5				
Lesion 1 (21 mL)	4.3	7.0	7.2	6.6
Lesion 2 (23 mL)	2.8	4.0	4.1	4.9
Lesion 3 (21 mL)	3.4	5.0	5.2	5.4
Patient 6				
Lesion 1 (23 mL)	2.4	2.6	2.1	1.4
Median (range)	2.8 (0.3 – 7.2)	4.0 (0.13 – 12.1)	4.8 (0.02 – 13.8)	4.9 (0.02 – 11.2)