

**Supplementary Table 1:** Display of tumor-background ratios for mean ( $SUV_{mean}$ ) and maximum ( $SUV_{max}$ ) standardized uptake values (and corresponding median) of the primary tumor (P), the hottest lymph node (LN) and visceral metastasis (M) for  $[^{68}\text{Ga}]\text{Pentixafor}$ ,  $[^{68}\text{Ga}]\text{DOTATOC}$  and  $[^{18}\text{F}]\text{FDG}$ , respectively.

Grade	Ki67(%)	Patient	$[^{68}\text{Ga}]\text{DOTATOC}$						$[^{18}\text{F}]\text{FDG}$						$[^{68}\text{Ga}]\text{Pentixafor}$						
			$P_{max}/B_{mean}$	$P_{mean}/B_{mean}$	$LN_{max}/B_{mean}$	$LN_{mean}/B_{mean}$	$M_{max}/B_{mean}$	$M_{mean}/B_{mean}$	$P_{max}/B_{mean}$	$P_{max}/B_{mean}$	$LN_{max}/B_{mean}$	$LN_{mean}/B_{mean}$	$M_{max}/B_{mean}$	$M_{mean}/B_{mean}$	$P_{max}/B_{mean}$	$P_{mean}/B_{mean}$	$LN_{max}/B_{mean}$	$LN_{mean}/B_{mean}$	$M_{max}/B_{mean}$	$M_{mean}/B_{mean}$	
1	1	#10	-	-	-	-	16.4	14.8	-	-	-	-	-	-	-	-	-	-	-	-	
1	2	#7	-	-	102.6	84.5	-	-	-	-	2.5	1.8	-	-	-	-	-	-	-	-	-
1	2	#9	-	-	-	-	80.2	58.1	-	-	-	-	4.4	3.2	-	-	-	-	-	-	-
<b>Median of G1 NET</b>			-	-	<b>102.6</b>	<b>84.5</b>	<b>48.3</b>	<b>36.5</b>	-	-	<b>2.5</b>	<b>1.8</b>	<b>4.4</b>	<b>3.2</b>	-	-	-	-	-	-	-
2	5	#5	-	-	-	-	23.8	23.1	-	-	-	-	5	3.9	-	-	-	-	-	-	-
2	8	#6	77.4	58.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	10	#2	14.3	10	18.7	14.8	22.6	12.2	2.4	1.9	2.9	2.3	2.2	2.1	3.8	2.3	-	-	-	-	-
2	10	#4	139.4	87.5	-	-	70.7	64.2	19.5	15.8	-	-	23	19.4	4.8	2.9	-	-	3.3	4.7	-
<b>Median of G2 NET</b>			<b>77.4</b>	<b>58.9</b>	<b>18.7</b>	<b>14.8</b>	<b>46.7</b>	<b>38.2</b>	<b>11</b>	<b>8.9</b>	<b>2.9</b>	<b>2.3</b>	<b>23.6</b>	<b>10.8</b>	<b>4.3</b>	<b>2.6</b>	-	-	<b>3.3</b>	<b>4.7</b>	-
3	60	#1	-	-	-	-	-	-	-	-	-	-	5.2	4.4	-	-	-	-	-	-	-
3	85	#3	-	-	-	-	-	-	3.7	3.0	-	-	-	-	5.6	3.3	5.3	3.1	-	-	-
3	90	#8	-	-	-	-	3.2	2.2	7.2	2.6	4.5	4.2	8.6	4	2.4	1.2	3.1	1.4	3.5	1.6	-
3	90	#11	48.4	34.8	-	-	-	-	3.2	1.8	1.5	1.1	3.8	2.3	3.2	1.6	2.9	1.3	5.9	3.5	-
3	90	#12	-	-	4	2.3	-	-	-	-	8.6	2.9	-	-	-	-	2.2	1.3	-	-	-
<b>Median of G3 NET</b>			<b>48.4</b>	<b>34.8</b>	<b>4</b>	<b>2.3</b>	<b>3.2</b>	<b>2.2</b>	<b>3.7</b>	<b>2.6</b>	<b>4.5</b>	<b>2.9</b>	<b>6.2</b>	<b>3.2</b>	<b>3.2</b>	<b>1.6</b>	<b>3</b>	<b>1.4</b>	<b>4.7</b>	<b>2.6</b>	-

**Supplementary Figure 1:** Example of exclusively  $[^{68}\text{Ga}]\text{Pentixafor}$ -PET positive lymph node metastasis (arrows) in pancreatic neuroendocrine tumor (patient #3; Ki67: 85%).  $[^{68}\text{Ga}]\text{DOTATOC}$  =  $[^{68}\text{Ga}]\text{DOTA-D-Phe-Tyr3-octreotide}$ ,  $[^{18}\text{F}]\text{FDG}$  =  $[^{18}\text{F}]\text{fluorodeoxy-glucose}$ .

