

**Supplement Table 1**

<b>Patients no.</b>	<b>Centre*</b>	<b>Age</b>	<b>Sex</b>	<b>Tracer</b>	<b><sup>68</sup>Ga-FAPI MBq</b>	<b><sup>18</sup>F-FDG MBq</b>	<b>Diagnosis</b>	<b>Time interval (days)</b>
1	UKHD	58	w	<sup>68</sup> Ga-FAPI-2	126	299	Gastrointestinal cancer	4
2	UKHD	31	m	<sup>68</sup> Ga-FAPI-2	307	344	Pancreatic biliary cancer	1
3	UKHD	55	m	<sup>68</sup> Ga-FAPI-2	298	298	Gastrointestinal cancer	9
4	UKHD	80	m	<sup>68</sup> Ga-FAPI-4	308	289	Lung cancer	19
5	UKHD	53	m	<sup>68</sup> Ga-FAPI-4	260	252	Pancreatic biliary cancer	36
6	UKHD	44	w	<sup>68</sup> Ga-FAPI-4	284	269	Gynecological cancer	4
7	UKHD	60	m	<sup>68</sup> Ga-FAPI-2	325	321	Head and neck cancer	27
8	UKHD	65	m	<sup>68</sup> Ga-FAPI-4	255	330	Lung cancer	70
9	UKHD	81	m	<sup>68</sup> Ga-FAPI-2	222	358	Lung cancer	1
10	UKHD	40	w	<sup>68</sup> Ga-FAPI-4	258	340	Gynecological cancer	7
11	UKHD	77	m	<sup>68</sup> Ga-FAPI-2	225	362	Head and neck cancer	6
12	UKHD	65	m	<sup>68</sup> Ga-FAPI-4	243	273	Pancreatic biliary cancer	14
13	UKHD	68	m	<sup>68</sup> Ga-FAPI-4	255	309	Head and neck cancer	1
14	UKHD	30	w	<sup>68</sup> Ga-FAPI-46	251	300	Gynecological cancer	20
15	UKHD	60	m	<sup>68</sup> Ga-FAPI-4	202	334	Head and neck cancer	8
16	UKHD	65	w	<sup>68</sup> Ga-FAPI-4	222	323	Gynecological cancer	2
17	UKHD	79	m	<sup>68</sup> Ga-FAPI-4	257	320	Lung cancer	53
18	UKHD	74	m	<sup>68</sup> Ga-FAPI-4	225	313	Pancreatic biliary cancer	13
19	UKHD	48	m	<sup>68</sup> Ga-FAPI-4	270	362	Head and neck cancer	53
20	UKHD	50	w	<sup>68</sup> Ga-FAPI-46	219	333	Lung cancer	6
21	UKHD	48	w	<sup>68</sup> Ga-FAPI-46	233	299	Gastrointestinal cancer	5
22	UKHD	46	w	<sup>68</sup> Ga-FAPI-46	274	309	Gastrointestinal cancer	13
23	UKHD	51	w	<sup>68</sup> Ga-FAPI-46	255	288	Gynecological cancer	18
24	UKHD	49	w	<sup>68</sup> Ga-FAPI-46	126	310	Gynecological cancer	36
25	UKHD	63	m	<sup>68</sup> Ga-FAPI-4	165	315	Gastrointestinal cancer	42

26	UKHD	67	m	<sup>68</sup> Ga-FAPI-4	182	291	Pancreatic biliary cancer	32
27	UKHD	55	m	<sup>68</sup> Ga-FAPI-46	247	293	Gastrointestinal cancer	7
28	UKHD	77	m	<sup>68</sup> Ga-FAPI-46	263	310	Other cancer	3
29	UHE	-	m	<sup>68</sup> Ga-FAPI-4	142	346	Pancreatic biliary cancer	2
30	UKW	56	w	<sup>68</sup> Ga-FAPI-4	134	291	Head and neck cancer	2
31	UKW	60	m	<sup>68</sup> Ga-FAPI-4	147	299	Head and neck cancer	16
32	UKW	53	m	<sup>68</sup> Ga-FAPI-4	150	321	Gastrointestinal cancer	14
33	UKW	49	m	<sup>68</sup> Ga-FAPI-4	120	294	Head and neck cancer	4
34	UKW	74	m	<sup>68</sup> Ga-FAPI-4	157	278	Head and neck cancer	2
35	UKW	66	m	<sup>68</sup> Ga-FAPI-4	115	303	Head and neck cancer	2
36	UKW	48	m	<sup>68</sup> Ga-FAPI-4	155	296	Pancreatic biliary cancer	1
37	UKW	64	m	<sup>68</sup> Ga-FAPI-4	168	300	Head and neck cancer	5
38	UKW	78	m	<sup>68</sup> Ga-FAPI-4	142	299	Other cancer	5
39	UKW	55	m	<sup>68</sup> Ga-FAPI-4	158	316	Gastrointestinal cancer	14
40	UKW	62	m	<sup>68</sup> Ga-FAPI-4	149	327	Pancreatic biliary cancer	10
41	UKW	54	m	<sup>68</sup> Ga-FAPI-4	155	317	Head and neck cancer	3
42	UKW	45	m	<sup>68</sup> Ga-FAPI-4	148	297	Pancreatic biliary cancer	18
43	UKW	60	m	<sup>68</sup> Ga-FAPI-4	148	289	Pancreatic biliary cancer	49
44	UKW	40	w	<sup>68</sup> Ga-FAPI-4	137	290	Other cancer	21
45	UKW	61	w	<sup>68</sup> Ga-FAPI-4	125	315	Gastrointestinal cancer	3
46	UCLA	51	m	<sup>68</sup> Ga-FAPI-46	185	407	Head and neck cancer	14
47	UCLA	69	w	<sup>68</sup> Ga-FAPI-46	185	503,2	Gastrointestinal cancer	10
48	UCLA	57	m	<sup>68</sup> Ga-FAPI-46	184,26	407	Other cancer	23
49	UCLA	69	w	<sup>68</sup> Ga-FAPI-46	185	673,4	Head and neck cancer	47
50	UCLA	76	m	<sup>68</sup> Ga-FAPI-46	185	384,8	Gastrointestinal cancer	8
51	UCLA	55	m	<sup>68</sup> Ga-FAPI-46	173,9	407	Gastrointestinal cancer	40
52	UCLA	36	w	<sup>68</sup> Ga-FAPI-46	183,89	370	Gynecological cancer	21
53	UCLA	65	m	<sup>68</sup> Ga-FAPI-46	185	499,5	Pancreatic biliary cancer	61

<b>54</b>	UCLA	<b>56</b>	w	<sup>68</sup> Ga-FAPI-46	185	374,81	Gastrointestinal cancer	15
<b>55</b>	UCLA	<b>65</b>	w	<sup>68</sup> Ga-FAPI-46	185	399,6	Gynecological cancer	23
<b>56</b>	UCLA	<b>61</b>	m	<sup>68</sup> Ga-FAPI-46	148	447	Gastrointestinal cancer	89
<b>57</b>	UCLA	<b>51</b>	w	<sup>68</sup> Ga-FAPI-46	185	680	Gynecological cancer	14
<b>58</b>	UCLA	<b>73</b>	m	<sup>68</sup> Ga-FAPI-46	185	488,4	Pancreatic biliary cancer	14
<b>59</b>	UCLA	<b>56</b>	w	<sup>68</sup> Ga-FAPI-46	185	555	Gastrointestinal cancer	19
<b>60</b>	TUM	<b>60</b>	w	<sup>68</sup> Ga-FAPI-4	239	258	Head and neck cancer	3
<b>61</b>	UKHD	<b>36</b>	w	<sup>68</sup> Ga-FAPI-74	255	295	Other cancer	5
<b>62</b>	UP	<b>62</b>	w	<sup>68</sup> Ga-FAPI-46	51,8	318,2	Gynecological cancer	1
<b>63</b>	UP	<b>46</b>	w	<sup>68</sup> Ga-FAPI-46	81,4	233,1	Gastrointestinal cancer	2
<b>64</b>	UP	<b>54</b>	m	<sup>68</sup> Ga-FAPI-46	55,5	314,5	Other cancer	1
<b>65</b>	UP	<b>51</b>	w	<sup>68</sup> Ga-FAPI-46	111	251,6	Gynecological cancer	1
<b>66</b>	UP	<b>60</b>	w	<sup>68</sup> Ga-FAPI-46	92	407	Lung cancer	1
<b>67</b>	UHE	<b>68</b>	m	<sup>68</sup> Ga-FAPI-46	142	450	Head and neck cancer	4
<b>68</b>	UHE	<b>47</b>	w	<sup>68</sup> Ga-FAPI-46	101	300	Gynecological	17
<b>69</b>	UHE	<b>79</b>	m	<sup>68</sup> Ga-FAPI-46	155	338	Lung cancer	3
<b>70</b>	UHE	<b>63</b>	m	<sup>68</sup> Ga-FAPI-46	154	358	Lung cancer	52
<b>71</b>	UHE	<b>79</b>	w	<sup>68</sup> Ga-FAPI-46	214	323	Lung cancer	8

\* UKHD = Heidelberg University Hospital, UHE = Essen University Hospital, UKW = Wuerzburg University Hospital, TUM = Technical University Munich, UCLA = University of California Los Angeles (United States, USA), UP = University of Pretoria (Republic of South Africa, RSA)

**Supplement Table 2**

Site	Heidelberg University Hospital	Würzburg University Hospital	Essen University Hospital	University of California, Los Angeles	Technical University Munich	University of Pretoria
PET/CT scanner	Biograph mCT Flow, Siemens	Biograph mCT, Siemens	Biograph128 mCT, Siemens	Biograph16, Biograph64, mCT, TruePoint, both Siemens; Discovery IQ, GE	Biograph, mCT, Siemens	Biograph mCT 40 slice, Siemens
Injected activity (MBq), <sup>68</sup> Ga-FAPI	239	142	142	183	239	78
Injected activity (MBq), <sup>18</sup> F-FDG	312	302	346	442	258	305
Time interval (median days)	9	5	6	20	3	1
CT reference (mAs)	30	modulated	91 - 98	average 88	120	40 - 150
CT peak kilovoltage (keV)	130	120	100	120	120	120
CT slice thickness (mm)	5	5	4 - 5	3,26 - 5	5	5
CT slice increment (mm)	3 - 4	-	4 - 5	-	3-4	5
PET reconstruction	OSEM algorithm	OSEM algorithm	OSEM algorithm	OSEM algorithm	OSEM algorithm	OSEM algorithm
Iterations	2	3	3	2 or 6	4	4
Subsets	21	24	21	8 - 24	8	8
Matrix	200 x 200	200 x 200	200 x 200	168 x 168 - 200 x 200		200x200
Corrections	Gaussian 5 mm FWHM	Gaussian 2 mm FWHM (TrueX, Siemens)	Gaussian	Gaussian 5 - 6,3 mm FWHM	Gaussian 5mm FWHM	Gaussian filter applied at FWHM of 5.0mm

**Supplement Table 3a**  
**Biodistribution SUVmean**

Organ	N	P-value	68Ga-FAPI		18F-FDG	
			SUVmean	Standard deviation	SUVmean	Standard deviation
Brain	71	< 0,001	0,07	0,05	7,42	2,16
Oral mucosa	70	< 0,001	1,41	0,38	2,37	0,99
Parotis (Mean)	70	< 0,001	1,33	0,43	1,64	0,52
Thyroid (Mean)	64	0,306	1,68	0,51	1,61	0,56
Lung (Mean)	71	0,056	0,48	0,20	0,46	0,17
Myocardium	71	< 0,001	1,07	0,33	2,47	2,01
Blood pool	71	< 0,001	1,34	0,43	1,88	0,39
Liver	71	< 0,001	0,93	0,38	2,38	0,37
Pancreas	57	< 0,001	1,31	0,49	1,57	0,30
Spleen	67	< 0,001	0,96	0,35	2,03	0,50
Kidney(Mean)	71	< 0,001	1,68	0,53	2,17	0,35
Intestine	69	< 0,001	0,74	0,28	1,08	0,58
Muscle	71	< 0,001	1,03	0,30	0,75	0,18
Fat	71	0,360	0,30	0,14	0,28	0,12
Spinal canal	71	< 0,001	0,47	0,22	0,79	0,29
<b>Lesion type</b>						
Primary	41	0,094	5,74	3,06	5,53	3,59
Metastases	43	0,814	4,56	2,45	4,59	2,15
Lymph node- Metastases	26	0,243	4,00	1,51	4,84	2,31
Bone Metastases	13	0,685	4,65	4,53	3,94	1,68
Liver Metastases	14	0,241	5,39	3,43	5,29	2,54
Lung Metastases	8	0,844	3,74	1,59	4,68	3,62
Other Metastases	14	0,068	5,97	3,04	4,55	2,10

**Table 3b**  
**Biodistribution SUVmax**

Organ	N	P-value	68Ga-FAPI		18F-FDG	
			SUVmean	Standard deviation	SUVmean	Standard deviation
Brain	71	< 0,001	0,09	0,06	10,72	2,96
Oral mucosa	70	< 0,001	2,04	0,66	3,33	1,18
Parotis (Mean)	70	< 0,001	1,71	0,58	2,04	0,59
Thyroid (Mean)	64	0,049	2,08	0,63	1,90	0,60
Lung (Mean)	71	< 0,001	0,79	0,32	0,66	0,20
Myocardium	71	< 0,001	1,50	0,47	3,27	2,59
Blood pool	71	< 0,001	1,81	0,50	2,34	0,51
Liver	71	< 0,001	1,42	0,50	3,10	0,61
Pancreas	57	0,027	1,82	0,58	1,99	0,38
Spleen	67	< 0,001	1,33	0,43	2,60	0,66
Kidney (Mean)	71	< 0,001	2,20	0,65	2,80	0,57
Intestine	69	< 0,001	1,40	0,52	2,05	1,06
Muscle	71	< 0,001	1,50	0,44	0,95	0,26
Fat	71	0,057	0,44	0,25	0,39	0,17
Spinal canal	71	< 0,001	0,64	0,35	1,00	0,36
<b>Lesion type</b>						
Primary	41	0,429	12,14	6,43	11,69	8,56
Metastases	43	0,814	8,49	4,31	9,48	6,78
Lymph node-Metastases	26	0,334	7,89	3,79	11,17	9,51
Bone Metastases	13	0,542	7,83	7,31	7,46	3,86
Liver Metastases	14	1,000	9,82	6,44	8,84	5,14
Lung Metastases	8	0,641	6,68	2,60	11,48	11,84
Other Metastases	14	0,119	10,67	4,52	8,17	3,93