

SUPPLEMENTARY TABLES

Table S1: MCC cell lines

Type of cell lines	Name	Growth pattern	MCPyV status	Culture medium	Reference
Variant	MCC-13	Adherent	neg	RPMI 1640, 10% FBS	(1)
	MCC-26	Adherent	neg		(2)
	UI50	Adherent	neg		(3)
Classical	AlDo	Suspension, aggregates	pos	RPMI 1640, 10% FBS	(4)
	BroLi	Suspension, aggregates	pos		(5)
	LoKe	Suspension, aggregates	pos		(5)
	MKL-1	Suspension, aggregates	pos		(6)
	MKL-2	Suspension, aggregates	pos		(2)
	MS-1	Suspension, aggregates	pos		(7)
	PeTa	Suspension, aggregates	pos		(4)
	UM-MCC9	Suspension, aggregates	neg	Modified neural crest stem cell self-renewal medium, 15% chick embryo extract	(8,9)
	UM-MCC13	Suspension, aggregates	pos		
	UM-MCC29	Suspension, aggregates	pos		
	UM-MCC31	Suspension, aggregates	pos		
	UM-MCC32	Suspension, aggregates	pos		
	UM-MCC34	Suspension, aggregates	neg		
	UM-MCC39	Suspension, aggregates	neg		
	UM-MCC52	Suspension, aggregates	pos		
	UM-MCC565	Suspension, aggregates	pos		
	UM-MCC623	Suspension, aggregates	neg		
	UM-MCC624	Suspension, aggregates	neg		
	WaGa	Suspension, single cells	pos	RPMI 1640, 10% FBS	(5)
	WoWe	Suspension, aggregates	pos		(4)
UKE-MCC1a	Suspension, aggregates	pos	Established in our lab		

In all the tables: pos = positive; neg = negative; unk = unknown

Table S2 : Non-MCC cell lines

Type of cell lines	Name	Growth pattern	Culture medium	Reference	
Melanoma	BLM	Adherent	RPMI 1640, 10% FBS	(10)	
	MV3	Adherent		(11)	
	Ma-Mel-02	Adherent			
	Ma-Mel-12	Adherent			
	Ma-Mel-13	Adherent			
	Ma-Mel-47	Adherent			
	Ma-Mel-61a	Adherent			
	Ma-Mel-61f	Adherent			
	Ma-Mel-66a	Adherent			
	Ma-Mel-68	Adherent			
	Ma-Mel-86a	Adherent			(12)
	Ma-Mel-86c	Adherent			(13)
	SK-Mel-28	Adherent			
	WM-9	Adherent			
Squamous cell carcinoma	HSC-1	Adherent	RPMI 1640, 10% FBS	(14)	
	MET-1	Adherent		(15)	
	MET-4	Adherent			
	SCL-1	Adherent			
	SCL-2	Adherent			
Fibroblasts	MRC-5	Adherent	MEM Eagle, 10% FBS	(16)	
	Primary skin fibroblasts	Adherent	DMEM, 15% FBS	(17)	
Epithelial cells	293T	Adherent	DMEM, 10% FBS	(18)	
Lung carcinoma	A549	Adherent	RPMI 1640, 10% FBS	(19)	

SUPPLEMENTARY REFERENCE

1. Leonard JH, Dash P, Holland P, Kearsley JH, Bell JR. Characterisation of four Merkel cell carcinoma adherent cell lines. *Int J Cancer* 1995;60:100-7
2. Van Gele M, Leonard JH, Van Roy N, Van Limbergen H, Van Belle S, Cocquyt V, *et al.* Combined karyotyping, CGH and M-FISH analysis allows detailed characterization of unidentified chromosomal rearrangements in Merkel cell carcinoma. *Int J Cancer* 2002;101:137-45
3. Ronan SG, Green AD, Shilkaitis A, Huang TS, Das Gupta TK. Merkel cell carcinoma: in vitro and in vivo characteristics of a new cell line. *J Am Acad Dermatol* 1993;29:715-22
4. Houben R, Dreher C, Angermeyer S, Borst A, Utikal J, Haferkamp S, *et al.* Mechanisms of p53 restriction in Merkel cell carcinoma cells are independent of the Merkel cell polyoma virus T antigens. *J Invest Dermatol* 2013;133:2453-60
5. Houben R, Shuda M, Weinkam R, Schrama D, Feng H, Chang Y, *et al.* Merkel cell polyomavirus-infected Merkel cell carcinoma cells require expression of viral T antigens. *J Virol* 2010;84:7064-72
6. Rosen ST, Gould VE, Salwen HR, Herst CV, Le Beau MM, Lee I, *et al.* Establishment and characterization of a neuroendocrine skin carcinoma cell line. *Lab Invest* 1987;56:302-12
7. Guastafierro A, Feng H, Thant M, Kirkwood JM, Chang Y, Moore PS, *et al.* Characterization of an early passage Merkel cell polyomavirus-positive Merkel cell carcinoma cell line, MS-1, and its growth in NOD scid gamma mice. *J Virol Methods* 2013;187:6-14
8. Harms PW, Patel RM, Verhaegen ME, Giordano TJ, Nash KT, Johnson CN, *et al.*

- Distinct gene expression profiles of viral- and nonviral-associated merkel cell carcinoma revealed by transcriptome analysis. *J Invest Dermatol* 2013;133:936-45
9. Verhaegen ME, Mangelberger D, Weick JW, Vozheiko TD, Harms PW, Nash KT, *et al.* Merkel cell carcinoma dependence on bcl-2 family members for survival. *J Invest Dermatol* 2014;134:2241-50
 10. Quax PH, van Muijen GN, Weening-Verhoeff EJ, Lund LR, Dano K, Ruiter DJ, *et al.* Metastatic behavior of human melanoma cell lines in nude mice correlates with urokinase-type plasminogen activator, its type-1 inhibitor, and urokinase-mediated matrix degradation. *J Cell Biol* 1991;115:191-9
 11. Ugurel S, Thirumaran RK, Bloethner S, Gast A, Sucker A, Mueller-Berghaus J, *et al.* B-RAF and N-RAS mutations are preserved during short time in vitro propagation and differentially impact prognosis. *PLoS One* 2007;2:e236
 12. Zhao F, Sucker A, Horn S, Heeke C, Bielefeld N, Schrors B, *et al.* Melanoma lesions independently acquire T-cell resistance during metastatic latency. *Cancer Res* 2016; 76: 4347-58
 13. Fenouille N, Tichet M, Dufies M, Pottier A, Mogha A, Soo JK, *et al.* The epithelial-mesenchymal transition (EMT) regulatory factor SLUG (SNAI2) is a downstream target of SPARC and AKT in promoting melanoma cell invasion. *PLoS One* 2012;7:e40378
 14. Cheung BB, Koach J, Tan O, Kim P, Bell JL, D'Andreti C, *et al.* The retinoid signalling molecule, TRIM16, is repressed during squamous cell carcinoma skin carcinogenesis in vivo and reduces skin cancer cell migration in vitro. *J Pathol* 2012;226:451-62
 15. Reichrath J, Rafi L, Rech M, Mitschele T, Meineke V, Gartner BC, *et al.* Analysis of the vitamin D system in cutaneous squamous cell carcinomas. *J Cutan Pathol*

2004;31:224-31

16. Friedman HM, Koropchak C. Comparison of WI-38, MRC-5, and IMR-90 cell strains for isolation of viruses from clinical specimens. *J Clin Microbiol* 1978;7:368-71
17. Pfeiffer LM, Kopelovich L. Differential genetic susceptibility of cultured human skin fibroblasts to transformation by Kirsten murine sarcoma virus. *Cell* 1977;10:313-20
18. He TC, Zhou S, da Costa LT, Yu J, Kinzler KW, Vogelstein B. A simplified system for generating recombinant adenoviruses. *Proc Natl Acad Sci U S A* 1998;95:2509-14
19. Nishikawa E, Osada H, Okazaki Y, Arima C, Tomida S, Tatematsu Y, *et al.* miR-375 is activated by ASH1 and inhibits YAP1 in a lineage-dependent manner in lung cancer. *Cancer Res* 2011;71:6165-73

Table S3 : Clinical data of MCC patients from Graz

Pat-ID	Sex	Age at ED	Stage at ED	MCPyV status	Sample			Therapy	Pt localization
					NED	Tumor	Unknown/ other tumor		
t #1	f	76	3	pos	1	1	0	Surgery, RT	upper leg
t #2	m	62	3	neg	2	2	0	Surgery, RT	trunk front
t #3	m	70	3	unk	1	2	0	Surgery, RT	head
t #4	m	69	1	unk	1	0	0	Surgery	lower arm
t #5	f	44	2	unk	0	1	0	Surgery, RT	head
t #6	m	75	2	pos	2	2	0	Surgery, RT	upper arm
t #7	m	69	3	pos	1	0	0	Surgery, RT	LN axilla
t #8	m	82	1	neg	1	1	0	Surgery	head
t #9	m	88	4	pos	0	1	0	Surgery, RT	head
t #10	m	82	3	unk	1	0	0	Surgery, RT	LN cervical
t #11	f	70	3	unk	0	1	0	Surgery, RT	lower arm
t #12	f	73	2	neg	1	1	0	Surgery, RT	upper arm
t #13	f	77	1	pos	1	0	0	Surgery	head
t #14	f	68	1	unk	0	1	0	Surgery, RT	upper leg
t #15	f	91	3	unk	1	0	0	Surgery	head
t #16	m	59	4	unk	0	1	0	Surgery, RT	trunk
t #17	m	84	2	unk	1	0	0	Surgery, RT, Chemo	head
t #18	m	81	3	unk	0	1	0	Unknown	
t #19	m	82	4	unk	0	1	0	Surgery	head
t #20	f	75	1	pos	0	1	0	Surgery, RT	upper leg
t #21	m	69	4	unk	0	1	0	Surgery, RT, Chemo	trunk
t #22	f	77	1	unk	1	0	0	Surgery	lower leg
t #23	m	72	1	unk	0	1	0	Surgery, RT	lower arm
t #24	m	81	4	unk	0	1	0	Surgery, Chemo	head
t #25	f	81	1	pos	0	0	1	Surgery	head
t #26	m	59	3	unk	0	1	0	Surgery, RT	trunk
t #27	m	62	1	unk	1	0	0	Surgery, RT	upper leg
t #28	m	71	3	unk	0	1	0	Surgery, RT	lower arm
t #29	f	69	4	unk	0	1	0	Surgery, RT, Chemo	upper arm

Table S4 : Clinical data of MCC patients from Seattle

Pat-ID	Sex	Age at ED	Stage at ED	MCPyV status	Sample			Therapy	Pt localization
					NED	Tumor	Unknown/ other tumor		
c #1	m	57	1	pos	8	0	0	none	upper limb
c #2	m	77	1	pos	7	1	0	RT	upper limb
c #3	f	71	1	pos	5	1	0	RT	head & neck
c #4	f	71	1	pos	7	0	0	RT	head & neck
c #5	m	62	2	pos	8	0	0	RT	trunk
c #6	f	74	3	pos	8	1	4	RT	unknown
c #7	m	67	1	pos	1	10	2	RT; IT	buttock
c #8	m	55	3	pos	1	3	0	RT	unknown
c #9	m	65	3	pos	0	2	1	RT	buttock
c #10	m	69	3	pos	1	1	0	RT	unknown
c #11	m	56	3	pos	0	5	0	RT; IT	unknown
c #12	f	55	3	pos	0	6	6	RT; IT	unknown
c #13	m	64	2	pos	0	6	5	RT	lower limb
c #14	f	66	unk	pos	3	2	0	RT	lower limb
c #15	m	63	3	pos	9	1	0	unknown	trunk
c #16	m	74	3	pos	0	7	0	RT; IT	upper limb
c #17	m	52	3	pos	3	14	1	Chemo; RT; IT	lower limb
c #18	m	58	3	pos	0	5	0	RT	head & neck
c #19	f	66	2	neg	0	1	0		lower limb
c #20	m	65	1	pos	1	0	0	RT	upper limb
c #21	f	70	3	neg	1	0	0	RT	unknown
c #22	m	68	1	pos	1	0	0	RT	upper limb
c #23	f	77	2	neg	0	1	0	RT	head & neck
c #24	m	86	3	pos	2	0	0	RT	trunk
c #25	m	24	3	neg	0	2	0	RT; Chemo	head & neck
c #26	f	73	3	unk	0	4	0	RT; Chemo	upper limb
c #27	f	52	3	pos	2	1	1	RT	unknown
c #28	f	82	3	pos	0	1	1	RT; IT	unknown
c #29	m	82	3	neg	0	4	0	RT, Chemo; IT	upper limb
c #30	m	66	3	pos	4	4	1	RT	head & neck
c #31	m	50	2	pos	5	4	2	RT; IT	lower limb
c #32	m	68	1	pos	1	1	2	RT	upper limb
c #33	f	68	1	pos	1	3	1	RT	lower limb

Table S5 : Clinical data of MCC patients from Essen

Pat-ID	Gender	Age at ED	Stage at ED	MCPyV status	Samples			Therapy	Pt localization
					NED	Tumor	Unknown/ other tumor		
e #1	m	75	4	pos	0	1	0	IT	cheek
e #2	m	71	3	pos	0	3	0	IT	lower leg
e #3	m	64	4	pos	3	1	0	IT	lower arm
e #4	m	70	4	pos	3	1	0	IT	lower arm
e #5	f	66	4	pos	0	1	0	IT	cheek
e #6	f	78	4	pos	0	2	0	IT	forehead
e #7	m	80	4	unk	3	1	0	IT	upper leg
e #8	m	60	4	pos	3	1	0	IT	lower leg
e #9	f	57	4	pos	2	2	0	IT	unknown primary
e #10	m	75	4	pos	6	8	0	Chemo; IT	upper arm
e #11	f	70	4	pos	4	1	0	IT	nose
e #12	f	42	4	pos	0	2	0	IT	unknown primary
e #13	f	61	4	unk	0	2	0	IT	buttock
e #14	f	61	4	pos	0	2	0		lower leg
e #15	m	54	3	pos	5	0	0	IT	lower arm
e #16	m	68	2	pos	4	0	0	none	buttock
e #17	m	73	2	pos	4	0	0	none	upper arm
e #18	m	59	2	pos	4	0	0	IT	unknown primary
e #19	f	73	2	unk	2	0	0	none	knee
e #20	f	80	3	pos	3	0	0	IT	lower leg
e #21	f	50	2	pos	2	0	0	IT	lower leg

Table S6 : Clinical data of MCC patients from Melbourne

Pat-ID	Gender	Age at ED	Stage at ED	MCPyV status	Samples			Therapy	Pt localization
					NED	Tumor	Unknown/ other tumor		
p #1	m	72	4	pos	8	3	0	RT; surgery; IT	head and neck
p #2	m	86	4	neg	0	1	0	unknown	head and neck
p #3	f	79	3	neg	2	3	0	RT	lower limb
p #4	m	83	3	pos	0	2	0	RT	upper limb
p #5	m	75	4	neg	1	1	0	Surgery	unknown
p #6	m	71	4	pos	0	3	0	Chemo; RT	unknown
p #7	m	77	4	pos	0	1	0	RT	unknown
p #8	m	56	3	unk	0	0	5	Chemo; RT	head and neck
p #9	m	72	4	pos	0	1	0	RT; chemo	trunk
p #10	m	72	4	neg	7	1	0	IT	head and neck
p #11	m	85	3	neg	2	4	0	RT	head and neck
p #12	m	64	3	neg	4	1	0	RT; Chemo	unknown
p #13	m	70	3	pos	0	3	0	RT; Chemo; IT	lower limb
p #14	m	72	3	neg	4	1	0	IT	head and neck
p #15	f	84	4	pos	0	1	0	Surgery; RT	head and neck
p #16	m	72	3	neg	3	3	0	RT; Chemo, IT	unknown
p #17	m	72	3	pos	1	1	0	RT; Chemo	unknown
p #18	f	92	3	pos	0	4	0	RT	lower limb
p #19	f	61	3	unk	3	1	0	RT; Chemo	upper limb
p #20	m	92	4	neg	0	0	2	unknown	upper limb
p #21	f	65	4	pos	0	1	0	RT	unknown
p #22	m	79	4	pos	0	4	0	IT	unknown
p #23	f	83	3	pos	0	3	0	Surgery; RT	unknown
p #24	m	84	4	unk	0	3	0	IT	head and neck
p #25	m	65	4	unk	0	2	0	RT; IT	trunk
p #26	f	89	3	neg	0	0	1	IT	upper limb