

Supplementary Tables

Supplementary Table 1: Thresholds used for immunohistochemistry analyses

Marker	Threshold (marker intensity/percentage)
Androgen Receptor (AR)	= 0+ or <10% or ≥1+ and ≥10%
c-KIT (CD117)	=0+ and =100% or ≥2+ and ≥30%
cMET	<50% or <2+ or ≥2+ and ≥50%
Estrogen Receptor (ER)	=0+ or <10% or ≥1+ and ≥10%
Progesterone Receptor (PR)	=0+ or <10% or ≥1+ and ≥10%
Epidermal Growth Factor Receptor (EGFR)	2+ and ≥10%
Human Epidermal Growth Factor Receptor 2 (HER2)	≤1+ or =2+ and ≤10% or ≥3+ and >10%
O(6)-methylguanine-methyltransferase (MGMT)	=0+ or ≤35% or ≥1+ and >35%
P-Glycoprotein (PGP)	=0+ or <10% or ≥1+ and ≥10%
Phosphatase and Tensin Homolog (PTEN)	=0+ or ≤50% or ≥1+ and >50%
Ribonucleotide Reductase M1 (RRM1)	=0+ or <50% or <2+ or ≥2+ and ≥50%
SPARC (Osteonectin)	<30% or <2+ or ≥2+ and ≥30%
Transducin-Like Enhancer of Split 3 (TLE3)	<30% or <2+ or ≥2+ and ≥30%
Topoisomerase 2 Alpha (TOPO2A)	=0+ or <10% or ≥1+ and ≥10%
Topoisomerase 1 (TOPO1)	=0+ or <30% or <2+ or ≥2+ and ≥30%
Thymidylate Synthase (TS)	=0+ or ≤3+ and <10% or ≥1+ and ≥10%
Tubulin β-3 Chain (TUBB3)	<30% or <2+ or ≥2+ and ≥30%

Supplementary Table 2: Key MP-findings for 14 cases of metastatic salivary gland ACC.

Patient No.	IHC (key targets)								FISH	Microarray ^a	Sequencing
	TS	ERCC1	TOPO1	SPARC ^b	MGMT	TOP2A	ER/PgR	AR	Targets successfully measured by FISH	Number of significant targets identified	Mutations identified by sequencing
1	Neg	High	Low	Low	Int.	Low	Neg	Pos	Analysis failed	3	Analysis not performed
2	Neg	Low	Low	NA	Low	Low	Pos	Neg	Analysis not performed	Analysis not performed	Analysis not performed
3 ^c	Low	High	Low	High	High	NA	Neg	Neg	TOP2A, neg; cMET, neg	Analysis not performed	Analysis failed
4	Low	Low	Low	Low	High	Low	Neg	Pos	Analysis failed	Analysis failed	Analysis not performed
5	Low	Low	High	Low	High	Low	Neg	Neg	Analysis failed	10	Analysis not performed
6	Low	Low	Low	High	Int.	Low	Neg	Neg	EGFR, neg; HER2, neg; ALK, no rearrangement	9	BRAF: w.t; EGFR and PIK3CA sequencing: failed
7	Low	High	High	Low	High	Low	Neg	Neg	Analysis not performed	Analysis failed	Analysis not performed
8 ^e	Neg	NA	High	High	High	Low	Neg	Neg	Analysis not performed	Analysis not performed	Analysis failed
9	Low	Low	Low	Low	Low	High	Pos	Int.	EGFR, neg; ALK, no rearrangement	7	BRAF, C-KIT, EGFR, KRAS: all w.t.
10	High	Low	Low	Low	High	High	Neg	Neg	EGFR, neg; HER2, neg; ALK, no rearrangement	8	BRAF, EGFR, PIK3CA: all w.t.
11	NA	NA	NA	High	Low	NA	Neg	Neg	Analysis not performed	Analysis not performed	Analysis not performed ^d
12	Neg	High	High	Low	Int.	Low	Neg	Neg	Analysis not performed	2	Analysis not performed
13	Int.	Int.	High	NA	High	Low	Neg ^e	NA	Analysis not performed	Analysis not performed	C-KIT: w.t; EGFR sequencing: failed
14	NA	High	High	NA	High	NA	Neg	Neg	EGFR, neg; HER2, neg	Analysis failed	Analysis not performed
No. of patients with actionable^f target/no. of evaluable patients (%)	9/12 (75%)	6/12 (50%)	6/13 (46%)	4/11 (36%)	3/14 (21%)	2/11 (18%)	2/14 (14%)	2/14 (14%)	NA	NA	NA

Grey cells with bold font represent findings associated with potential clinical benefit for a particular treatment regimen. None of the 12 patients whose HER2 levels were tested by IHC was found to be HER2 positive.

ACC, adenoid cystic carcinomas; AR, androgen receptor; ASNS, asparagine synthetase; CMI, Caris Molecular Intelligence; DCK, deoxycytidine kinase; EGFR, epidermal growth factor receptor; EPHA2, erythropoietin-producing hepatocellular receptor tyrosine kinase class A2; ER, estrogen receptor; ERCC, excision repair cross-complementation; ESR1, estrogen receptor 1; FISH, fluorescence in situ hybridization; HER2, human epidermal growth factor receptor 2; IHC, immunohistochemistry; Int, intermediate; MGMT, O-6-methylguanine-DNA methyltransferase; MP, molecular profiling; NA, not available; Neg, negative; 1; PDGFRA, platelet-derived growth factor receptor alpha; PGP, P-glycoprotein; PgR, progesterone receptor; Pos, positive; RRM2B, ribonucleotide reductase M2 B; SPARC, secreted protein acidic and rich in cysteine; SSTR2, somatostatin receptor 2; TOPO1/TOP1, topoisomerase I; TOP2A/B, topoisomerase II alpha/beta; TS, thymidylate synthase; TUBB3, tubulin, beta 3 class III; VDR, vitamin D receptor; VEGFR2, vascular endothelial growth factor receptor; w.t., wild type.

^aMicroarray analysis evaluated 80 targets.

^bThe IHC analysis was performed twice (using monoclonal and polyclonal anti SPARC antibodies).

^cThese patients had negative/low PGP and TUBB3 by IHC

^dThis patient underwent 2 sets of MP, CMI and sequencing (not through CMI) and was found to have AKT1 mutation

^eThis patient had PR negative tumor, ER levels were not measured.

^fAn actionable target is defined as an MP finding associated with a potential clinical benefit for a particular treatment regimen.