

**Supplementary Table S1.** List of 26 cases negative to p53 immunoistochemistry, showing that 4/26 cases had TP53 mutation by NGS.

Tissue and histotype	Grade	IHC%	TP53 (Ref.TP53-202)	Mutation	% Mutation	Polyphen2 score
mammary, solid carcinoma	3	<10%	p.C186Y	Missense	25	1
mammary, comedocarcinoma	3	<10%	p.P372S	Missense	10	0.997
mammary, tubular carcinoma	2	<10%	WT			
mammary, solid carcinoma	3	<10%	WT			
mammary, tubular carcinoma	2	<10%	WT			
mammary, papillary carcinoma	3	<10%	WT			
mammary, micropapillary carcinoma	2	<10%	WT			
mammary, papillary carcinoma	2	<10%	WT			
mammary, solid carcinoma	3	<10%	NE			
mammary, solid carcinoms	3	<10%	NE			
mammary, papillary carcinoma	2	<10%	NE			
mammary, solid carcinoma	1	<10%	NE			
mammary, solid carcinoma	2	<10%	NE			
mammary, solid carcinoma	2	<10%	NE			
mammary, micropapillary carcinoma	3	<10%	NE			
skin, SCC	n/a	<10%	p.R265Stop	Non-sense	20	1
skin, SCC	n/a	<10%	WT			

skin, SCC	n/a	<10%	WT			
skin, SCC	n/a	<10%	WT			
skin, SCC	n/a	<10%	NE			
subcutis, STS	2	<10%	WT			
subcutis, STS	2	<10%	WT			
subcutis, STS	2	<10%	WT			
skin, amelanotic melanoma	n/a	<10%	WT			
skin, amelanotic melanoma	n/a	<10%	NE			
bone, osteosarcoma	3	<10%	p.R301P	Missense	75	1

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\* NE=non evaluable, WT= wild type, SCC=squamous cell carcinoma, STS=soft tissue sarcoma, n/a= not applicable.