

**Additional Information Table S1A.** Study characteristics of articles included in the review investigating CAIX expression prevalences in breast cancer, *in situ* carcinoma, benign breast disease, and normal breast tissue.

Reference	Study population			Patient and tumor characteristics				Histology							IHC			Obs.				
	First author Year, Country of patient inclusion	Inclusion period	No. of invasive cancers (+other tissue)	Important selection criteria	Age(range/ SD)	Tumor size*		Histological grade		LN <sup>+</sup> (%)	Normal	Benign	In situ	invasive	IDC	ILC	Other		TMA	Cores (mm)	Antibody (manufacturer)	
						pT	0%	100%	0%													100%
<b>Betof, A.S.[32]</b> 2012, USA	(ns)	207	-		48(24-79)	1 2 3		I II III		86	○	○	○	●	○	○	○	○			M75 (na)	2
<b>Choi, J.[33]</b> 2013, South Korea	2000-2001	276	-		49 <sup>a</sup> (11)	ns		I II III		45	○	○	○	○	●	○	○	●	2	3.0	ns (Abcam)	ns
<b>Kornegoor, R.[34]</b> 2012, The Netherlands	1986-2010	132	males		66 <sup>a</sup> (32-89)	1 2/3		I/II III		54	○	○	○	○	●	●	●	●	3	0.6	ns (Abcam)	2
<b>Tafreshi, N.K.[35]</b> 2012, USA	ns	89 (+51)	-		ns	ns		I II III		49	●	○	●	○	●	○	○	●	2	0.6	ns (Abcam)	3
<b>Vermeulen, J.F.[36]</b> 2012, The Netherlands	1997-2007	458	-		60 <sup>a</sup> (28-88)	1 2 3		I II III		48	○	○	○	○	●	●	●	●	3	0.6	Ab15086 (Abcam)	1
<b>Beketic-Oreskovic, L.[37]</b> 2011, Croatia	1999-2005	40	-		62(33-84)	1/2 3		I II III		55	○	○	○	○	●	○	○	○			ns (Santa Cruz)	2
<b>Fox, S.B.[38]</b> 2011, Italy	1997-2001	166	T2-4, N0-1		ns	1 2 3		I II III		43	○	○	○	●	○	○	○	●	2	1.0	M75 (na)	2
<b>Hyseni, A.[39]</b> 2011, The Netherlands	ns	92	-		56(ns)	20 (ns)		I II III		ns	○	○	○	○	●	●	●	○			ns (Abcam)	1
<b>Khurana, A.[40]</b> 2011, USA	199x-2003	53	-		56(13)	ns		I II III		100	○	○	○	○	●	○	○	●	ns	ns	Ab15086 (Abcam)	ns
<b>Lou, Y.[41]</b> 2011, USA	ns	3630	-		ns	1 2 3		I II III		44	○	○	○	●	○	○	○	●	1	0.6	M75 (na)	2
<b>Pinheiro, C.[42]</b> 2011, Portugal	ns	122	-		ns	1 2 3		I II III		50	○	○	○	●	○	○	○	●	2	2.0	Ab15086 (Abcam)	2
<b>Yan, M.[43]</b> 2011, UK	ns	448	-		55(24-87)	ns		I II III		44	○	○	○	●	○	○	○	○			M75 (na)	ns
<b>Zanetti, J.S.[44]</b>	1994-2004	243	-		55(25-85)	1 2		I II		53	○	○	○	○	●	○	○	●	ns	1.0	ns (Abcam)	2

2011, Brazil					3		III											
<b>Chen, C.L.[45]</b> 2010, Taiwan	ns	59 (+109)	-	ns	1/2 3		I II III		50	● ● ● ○ ● ○ ○ ○							ns (Santa Cruz)	ns
<b>Dachs, G.U.[46]</b> 2010, New Zealand	2003-2007	28	-	61(14)	22 (13)		I II III		50	○ ○ ○ ○ ● ● ● ○							ns (Novus Biologicals)	1
<b>Jubb, A.M.[47]</b> 2010, UK	1989-1998	151	-	57 <sup>a</sup> (27-80)	1 2/3		I II III		43	○ ○ ○ ○ ● ● ● ●	ns	ns					M75 (na)	2
<b>Lancashire, L.J.[48]</b> 2010, UK	1986-2000	712	-	ns	small large		I II III		43	○ ○ ○ ○ ● ● ● ⊙	2	0.6					Ab15086 (Abcam)	ns
<b>Koop, E.A.[49]</b> 2009, The Netherlands	2004-2006	40	-	ns	1 2/3		I/II III		58	○ ○ ○ ○ ● ● ● ○							ns (Abcam)	2
<b>Rakha, E.A.[50]</b> 2009, UK	1987-1998	232	TN, T1-2	50(25-70)	ns		I II III		40	○ ○ ○ ○ ● ○ ○ ●	ns	ns					ns (Abcam)	ns
<b>Tan, E.Y.[51]</b> 2009, UK	ns	407	-	55(24-87)	22 (ns)		I II III		46	○ ○ ○ ○ ● ● ● ●	ns	1.0					M75 (na)	2
<b>Crabb, S.J.[52]</b> 2008, Canada	1986-1992	281	Clinically LN+	ns	1 2 3		I II III		100	○ ○ ○ ○ ● ● ○ ●	ns	0.6					M75 (na)	2
<b>van der Groep, P.[53]</b> 2008, The Netherlands	ns	21	BRCA1+ / BRCA1+ in family	ns	1 2 3		I II III		ns	○ ○ ○ ○ ● ● ● ○							ns (Abcam)	1
<b>Kyndi, M.[54]</b> 2008, Denmark	1982-1989	945	-	ns	1 2 3		I II III		6	○ ○ ○ ○ ● ● ● ●	1/2	1.0					M75 (na)	1
<b>Garcia, S.[55]</b> 2007, France	1995-2002	923	-	54 <sup>a</sup> (31-84)	23 (7-45)		I II III		50	○ ○ ○ ○ ● ○ ○ ●	2	0.6					Ab15086 (Abcam)	ns
<b>Hussain, S.A.[56]</b> 2007, UK	ns	144	-	62(29-94)	1 2/3		I II III		39	○ ○ ○ ● ○ ○ ○ ●	4	4.0					M75 (na)	2
<b>Tan, E.Y.[57]</b> 2007, UK	ns	232	-	57(29-90)	20 (2-230)		I II III		43	○ ○ ○ ○ ● ● ● ●	ns	1.0					M75 (na)	2
<b>Trastour, C.[58]</b> 2007, France	1993-1993	132	-	62(28-87)	15 (2-100)		I II III		36	○ ○ ○ ○ ● ● ● ○							MN75 (Bayer)	2
<b>Brennan, D.J.[59]</b> 2006, Sweden	1984-1991	400	Pre-menopausal / <50 yr, stage II	44(25-57)	1 2 3		I II III		73	○ ○ ○ ○ ● ● ● ●	2	0.6					M75 (na)	2
<b>Generali, D.[60]</b> 2006, Italy	1997-2002	169	T2-4, N0-1	ns	1 2 3		I II III		43	○ ○ ○ ● ○ ○ ○ ●	2	0.6					M75 (na)	2
<b>Generali, D.[61]</b>	1997-2002	169	T2-4, N0-1	ns	1		I		43	○ ○ ○ ● ○ ○ ○ ●	2	0.6					M75 (na)	2

2006, Italy					2		II												
<b>Vleugel, M.M.[62]</b>	1982-1994	183	M-	ns	ns		ns		35	○ ○ ○ ○ ● ● ● ○								M75 (na)	2
2006, The Netherlands																			
<b>van den Eynden, G.G.[63]</b>	ns	60	Clinically LN+	59 <sup>a</sup> (25-84)	1		I		100	○ ○ ○ ○ ● ● ● ○								NB100-417A (Novus)	1
2005, Belgium					2		II												
					3		III												
<b>Kuijper, A.[64]</b>	ns	10	including PT / FA	34 <sup>a</sup> (11)			ns		ns	○ ● ○ ○ ○ ○ ● ○								M75 (na)	2
2005, The Netherlands		(+55)																	
<b>Vleugel, M.M.[65]</b>	1982-1994	200	-	ns	1		I		39	○ ○ ○ ○ ● ● ● ○								M75 (na)	2
2005, The Netherlands					2		II												
					3		III												
<b>Blackwell K.L.[66]</b>	1988-1995	35	-	ns			ns		ns	○ ○ ○ ● ○ ○ ○ ○								M75 (na)	ns
2004, USA																			
<b>Cooper, C.[67]</b>	ns	51	ERα+	ns	ns		I		ns	○ ○ ● ● ○ ○ ○ ○								M75 (na)	2
2004, Canada							II												
							III												
<b>Colpaert, C.G.[68]</b>	ns	129	including IBC	54 <sup>a</sup> (25-83)			ns		66	○ ○ ○ ● ○ ○ ○ ○								M75 (na)	>1
2003, Belgium																			
<b>Tomes, L.[69]</b>	ns	97	-	ns	1		I		48	○ ○ ○ ○ ● ○ ○ ○								M75 (na)	1
2003, Canada					2		II												
					3		III												
<b>Bartosova, M.[70]</b>	1998-1999	19	-	50 <sup>a</sup> (19-82)	ns		ns		ns	● ● ● ○ ● ● ● ○								M75 (na)	2
2002, Slovakia		(+43)																	
<b>Chia, S.K.[71]</b>	1989-1994	103	-	59(28-82)	1		I		56	○ ○ ○ ○ ● ● ● ○								M75 (na)	1
2001, UK					2/3		II												
							III												
<b>Wykoff, C.C.[9]</b>	1997-1999	14	-	ns	na		na		ns	● ○ ● ○ ● ○ ○ ○								M75 (na)	1
2001, UK		(+115)																	

a: mean; \*: mean size in mm (range or SD); b: nuclear grade; ns: not stated; na: not applicable; ○: tissue not investigated; ●: tissue investigated; ◎: both TMA and full sections investigated; IDC: invasive ductal carcinoma; ILC: invasive lobular carcinoma; IBC: inflammatory breast cancer; ABC: advanced breast cancer; TN: triple negative; LN: lymph node; TMA: tissue microarray PT: phyllodes tumors FA: fibroadenoma; M: distant metastasis, Obs.: number of observers evaluating staining result, +: positive; -: negative