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Resultaten EKE IHC 2022/1

De Wiest Bart

30 mei 2022

OLV Ziekenhuis Aalst

EKE IHC 2022-1

Antistoffen: semi-kwantitatieve EKE

- ✓ ER: n=62
- ✓ Her2: n=64

Panel:

- ✓ Scoring 29/03/2022 (Sciensano, Brussel)
- ✓ Extra anonimisatie m.b.v. volgnummer
- ✓ Onafhankelijk, in consensus
- ✓ 2 pathologen

Procedure panelbeoordeling

- Literatuurstudie m.b.t. antilichaam: NordiQC website, datasheets, guidelines, …
  - Wat moet / kan aankleuren?
  - Wat mag zeker niet aankleuren?
- Vastleggen criteria aankleuring per AS
- Beoordeling
  - Consensus binnen het panel
  - Reden voor afwijkend resultaat bij borderline/onvoldoende
  - Evt. aanbevelingen protocol

  → eindbeoordeling

Antistof HER2

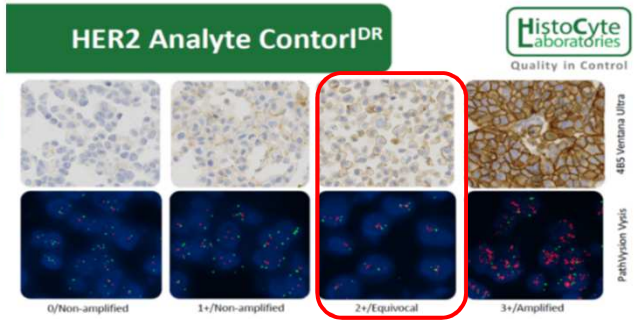
Samenstelling EQA blok

- Doel: evaluatie analytische accuraatheid Her2 analyse voor het aantonen en vaststellen van het eiwit expressie niveau in borstcarcinomen
- Hoe: 5 borstcarcinomen met dynamische en kritisch relevante expressieniveaus
- Weefsel
  - Biopt 1: IHC 0, Non Amplified
  - Biopt 2: IHC 1+ Non Amplified
  - Biopt 3: IHC 2+ Non Amplified
  - Biopt 4: IHC 2+ Amplified, focaal 3+
  - Biopt 5: IHC 3+ Amplified

			IHC	ISH (ratio)
Biopten*	1. Borstcarcinoom 2. Borstcarcinoom 3. Borstcarcinoom 4. Borstcarcinoom 5. Borstcarcinoom		1) 0 2) 1-2+ 3) 1-2+ 4) 2+ (focaal 3+) 5) 3+	1) Not amplified (1.03) 2) Not amplified (1.30) 3) Not amplified (1.69) 4) Amplified (2.18) 5) Amplified (2.26)

- Cellijn

Cell Line	IHC for HER2	FISH for HER2 gene amplification
A	0	Non-amplified
B	1+	Non-amplified
C	2+	Equivocal
D	3+	Amplified



Beoordelingscriteria HER2

- Optimaal :
  - de kleuring van biopt 4 (2+ amplified)komt overeen met een score 2+ (focaal 3+)
  - de kleuring van biopt 3 (2+ non amplified) komt overeen met een score 1+ of 2+
  - er is geen of maximaal zwakke cytoplasmatische aankleuring die niet interfereert met de interpretatie van de membranaire aankleuring
- Goed :
  - de kleuring van subkloon 3+ (= sterke expressor) in biopt 4 is correct maar de kleuring van de andere cellen in hetzelfde biopt komt niet overeen met de beoogde score 2+ amplified (te zwakke kleuring)
  - of algemeen weinig intense membranaire aankleuring
  - of vals positieve aankleuring (bv. de kleuring van biopt 1 (0) komt overeen met een score 1+)
  - of te zwakke tegenkleuring
  - of er is cytoplasmatische aankleuring die interfereert met de interpretatie van de membranaire aankleuring
- Borderline :
  - één van de cellijnen is vals negatief → optimalisatie van het protocol is nodig
- Onvoldoende :
  - de kleuring van biopt 5 komt overeen met een score 0 of 1+ → optimalisatie van het protocol is dringend nodig

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Protocol HER2

n= 60 (64 ingeschreven)

Conc.: n=23 → 19

- Dako: polyclonaal: n=22 →18
- CellMarque clone SP3 : n=1
- Leica/Novocastra: geen
- Enzo Lifesciences: n=1→ 0

RTU: n=41

- Dako Herceptest (DG44): n=1 → 6
- Roche: rm 4B5: n=39 → 35
- Leica/Novocastra: clone CB11 : n=1

Protocol HER2

Polyclonaal conc. Dako

- Dako datasheet Autostainer
  - pH6: 1/600-1/800 ; 20min RT
  - pH9: 1/1000-1/1200 ; 20min RT

- op Autostainer: 4
  - Inc. tijd : 20-25min RT
  - Verdunningen:
    → 2019-1: **10** verdunningen: 1/150 - 1/800
    → 2022-1: 3 verdunningen: 1/150 tot 1/300

  - HIER
    → 2019-1: 2/14 pH9 → rest pH6
    → 2019-3: enkel pH6
    → 2020-1: 2/7 pH9 , rest pH6
    → 2020-3 : 3/7 pH9 , rest pH6
    → 2022-1: pH6 en pH9

Protocol HER2

Polyclonaal conc. Dako

- op Omnis: 11
  - Verdunningen
    - → 2019-1: 5 verdunningen 1/100 - 1/600
    - → 2019-2: 6 verdunningen: 1/100 – 1/400
    - → 2020-1: 7 verdunningen: 1/100 tot 1/1000 ; 1/4 gebruikt 1/200
    - → 2020-3 : idem (7 verdunningen) ; 1/3 gebruikt 1/200
    - → **2022-1:** 7 verdunningen: 1/100 tot 1/1000 ; 18% gebruikt 1/200
  - Inc.tijd : 12 - 30 min RT/32° C (82% gebruikt 20')
  - HIER
    - → 2019-1: enkel pH6
    - → 2020-3: 70% pH6
    - → 2022-1: 64% pH6

- Dako AS op Roche stainers: 2
  - 1/200 32' bij 36° C of 1/400 20' bij 36° C UV/OV ; HIER CC1 mild

- Dako AS op Bond III: 1
  - 1/500 15' bij RT ; HIER pH9 20'

Protocol HER2

Clone 4B5 RTU Ventana

- BMK GX (n=3) → geen
- BMK Ultra UltraView (n=34)
  - **25%** datasheet: AS12′ ; CC1 mild
  - AS: 8′ - 32′ bij 36° C/RT (~30%: 12′) ↗
  - + amplifier (30% !): 4′ - 16′
  - HIER: CC1 8′ - 64′ ! (~85% CC1 mild) ↗
- BMK Ultra: iView kit (n=1) → geen

Protocol HER2

Herceptest Dako RTU

- 1 → 6 deelnemers Omnis platform
- AS inc. enkel 10’ bij 32° C ; HIER allen pH6 30’
- Datasheet (8/2020): protocoldetails niet beschikbaar, wel gestandaardiseerd

Clone SP3 CellMarque

- 1/100 32’ bij 36° C ; HIER 64’ CC1 ; OV Ultra

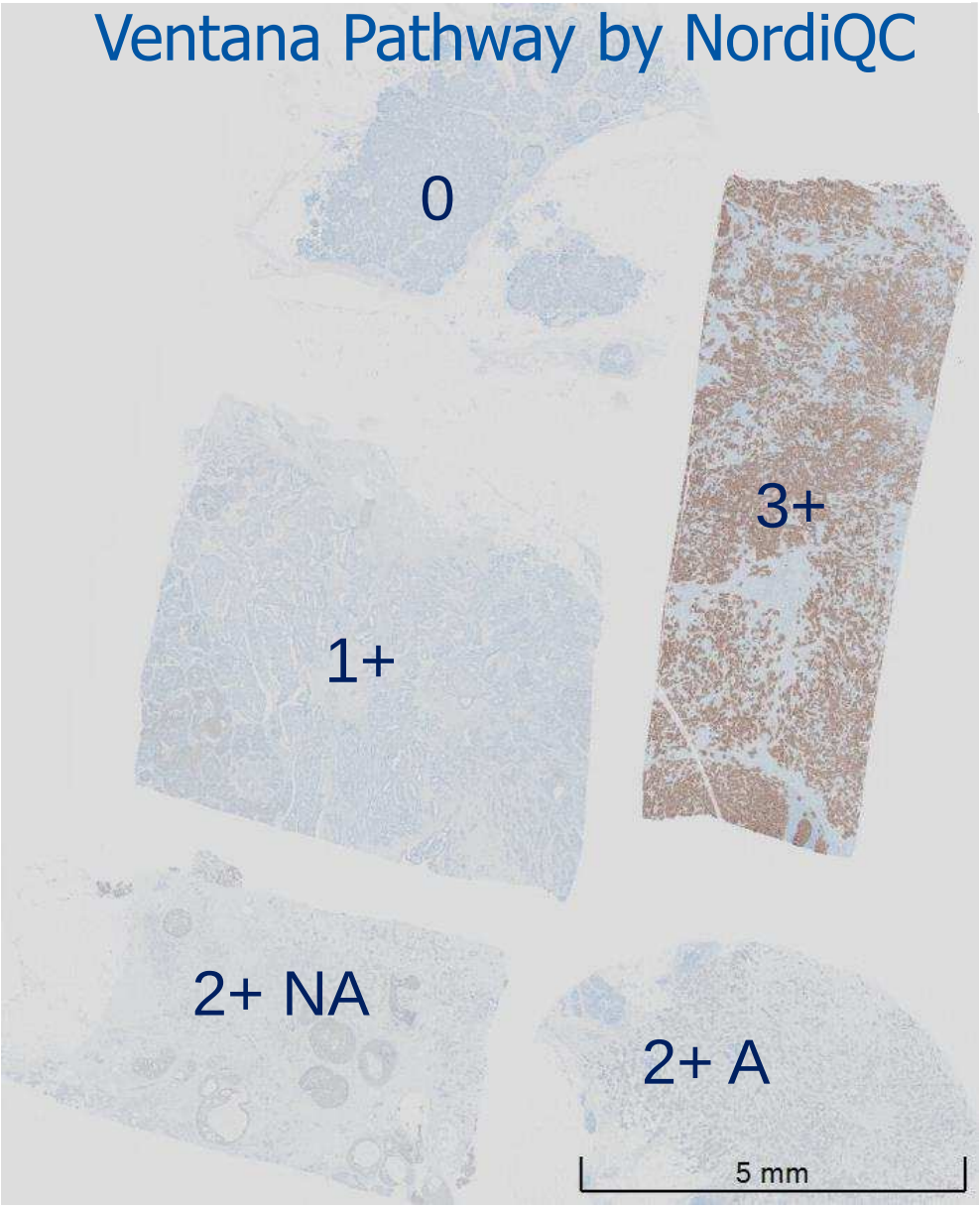
Clone CB11 Leica

- conc. : geen gebruikers meer
- RTU: Leica Bond III: AS inc. 15’ RT; HIER pH9 20’

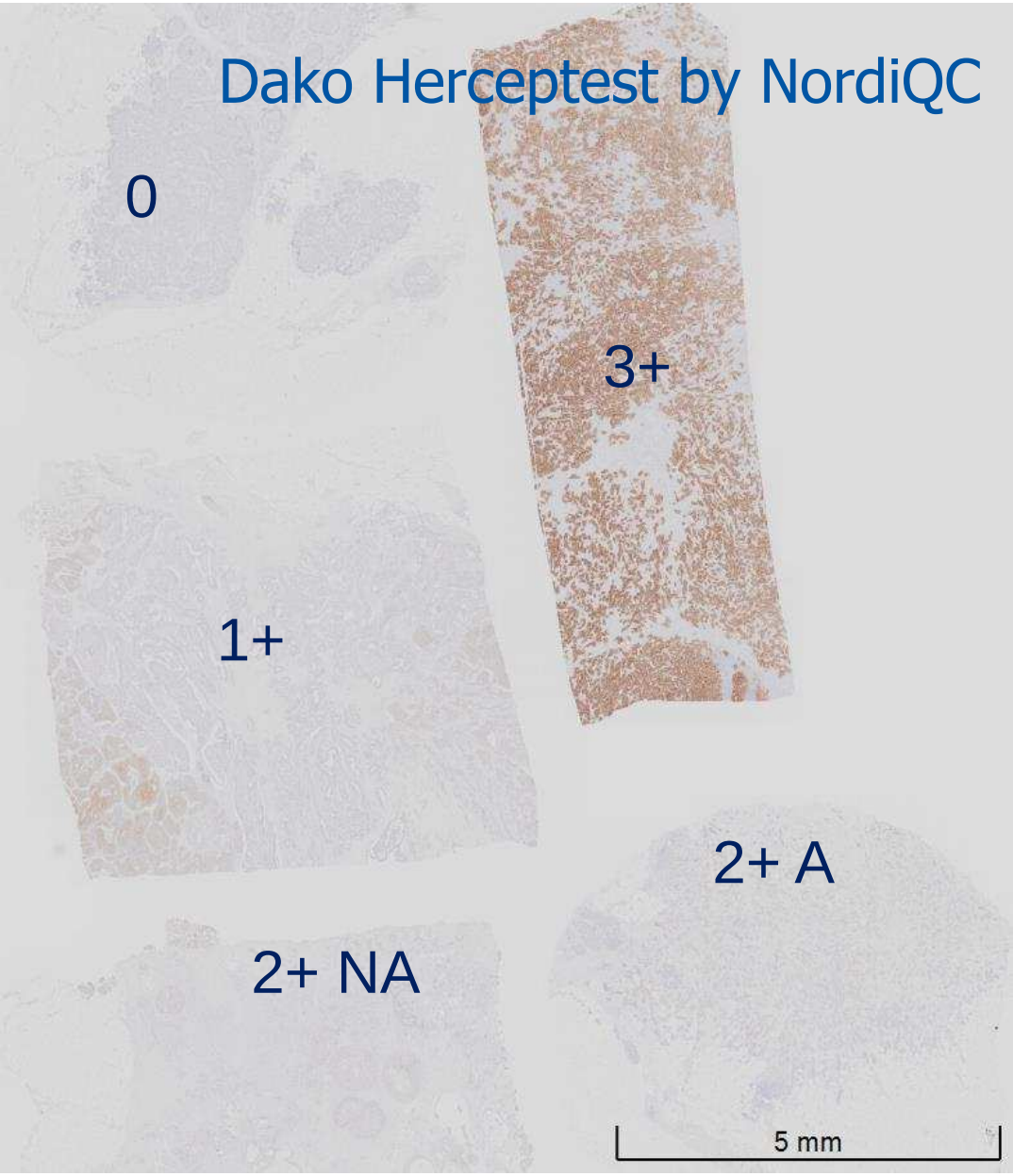
Antistof HER2 : overzicht

Ventana Pathway by NordiQC

Expected result

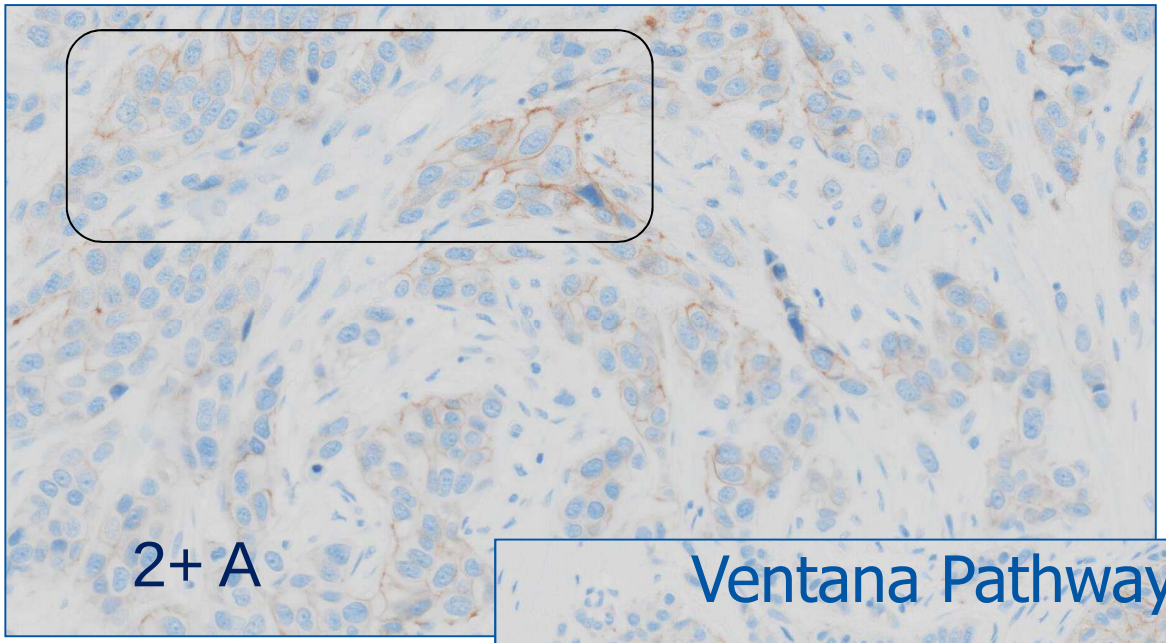


Antistof HER2 : overzicht

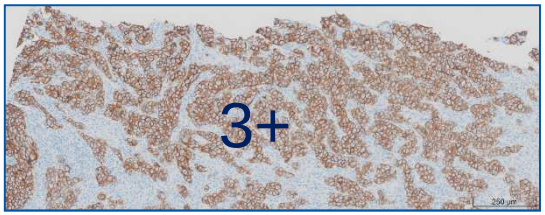


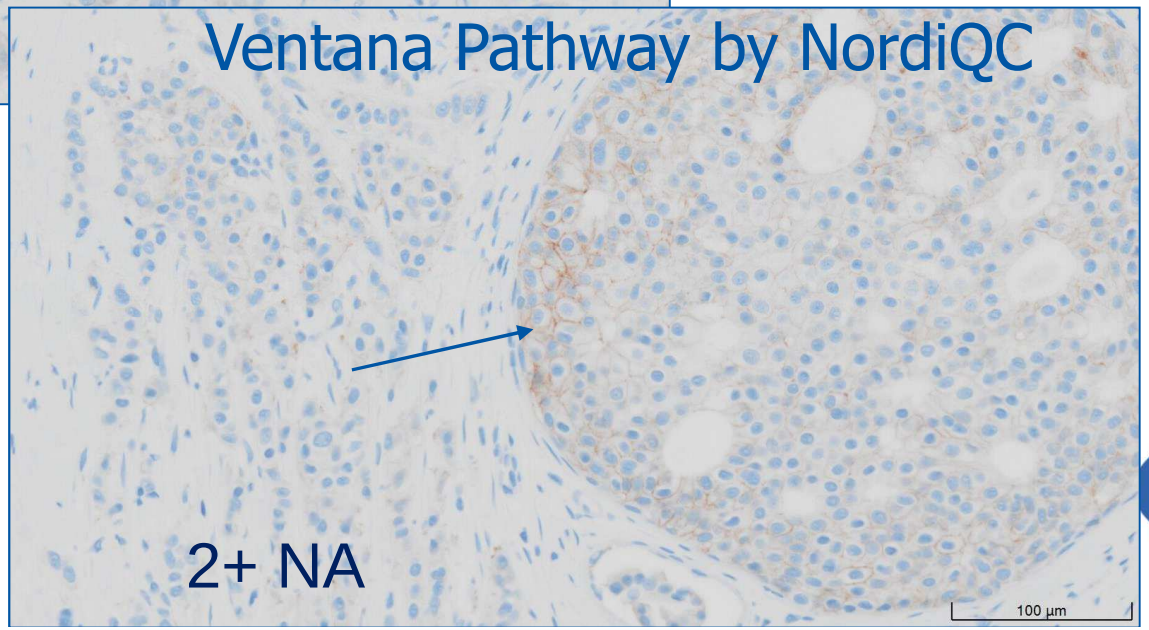
Expected result

Antistof HER2 : overzicht

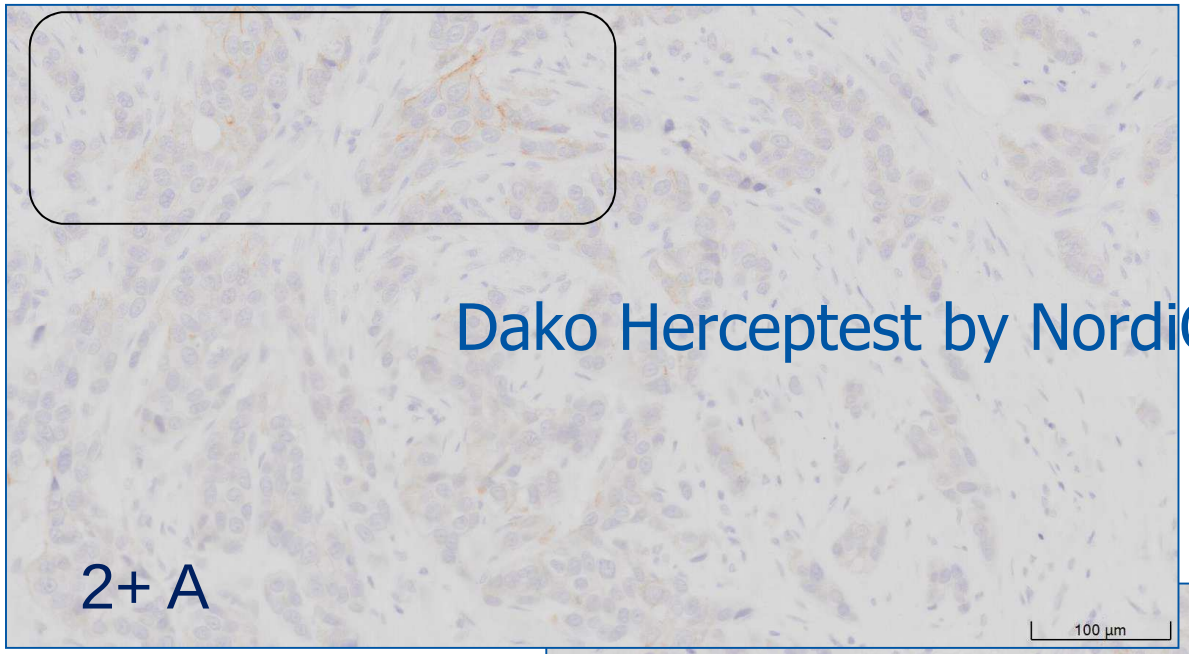


Expected result



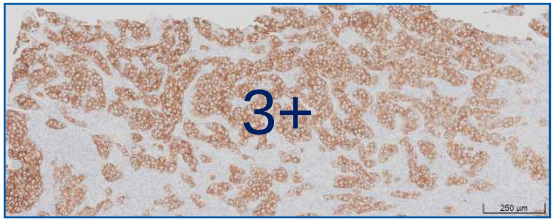


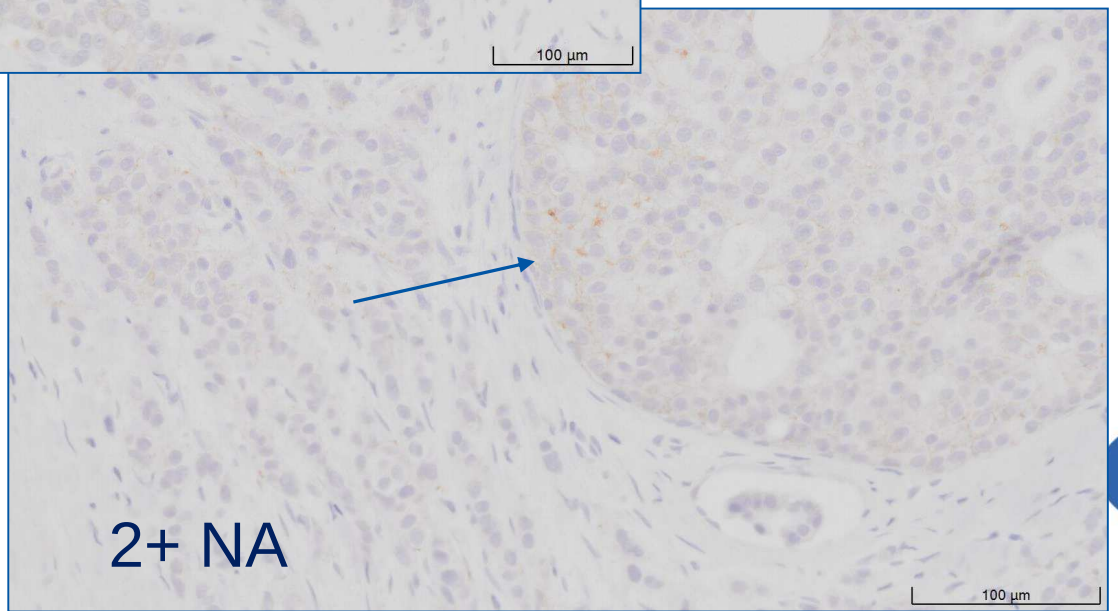
Antistof HER2 : overzicht



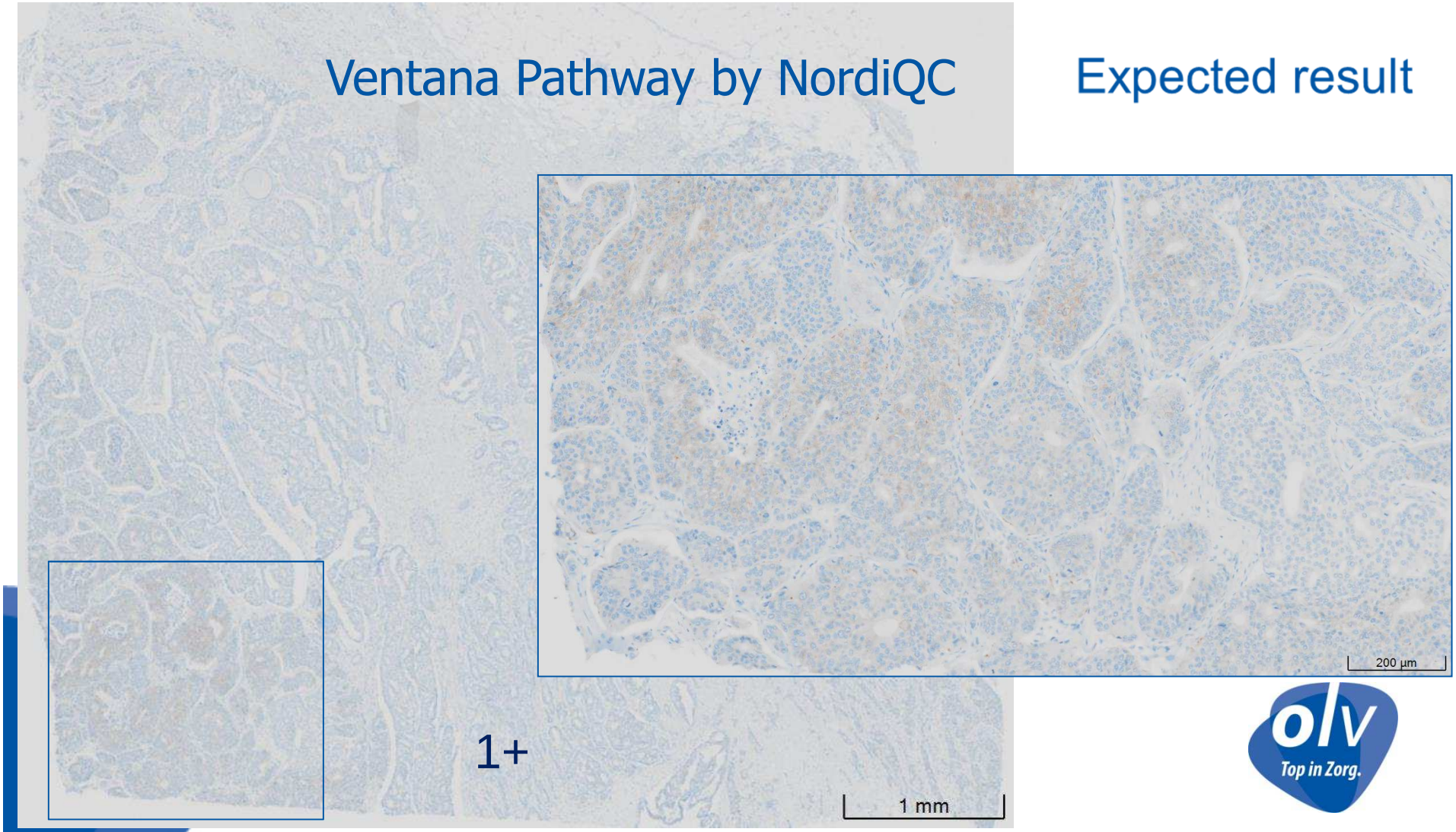
Dako Herceptest by NordiQC

Expected result

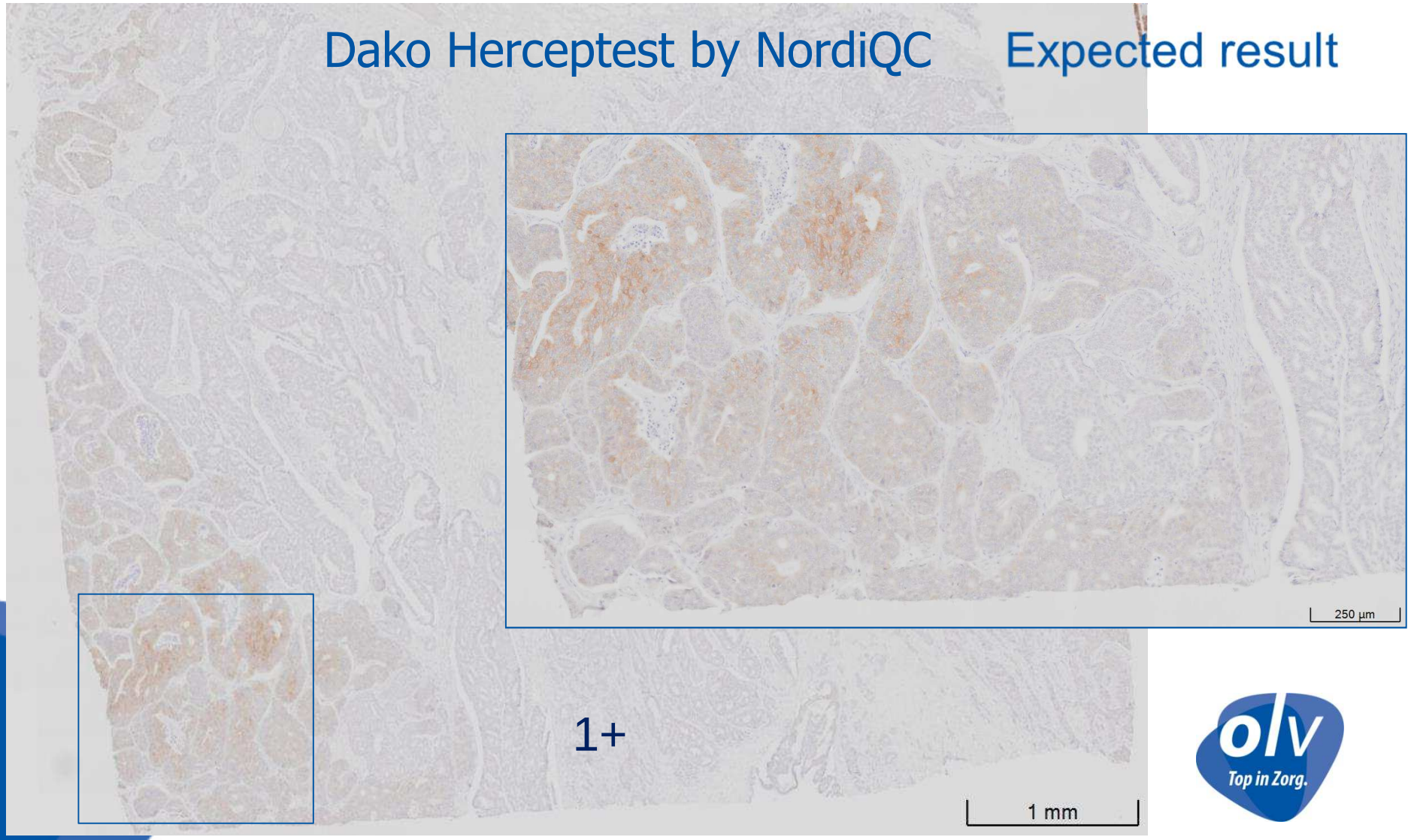




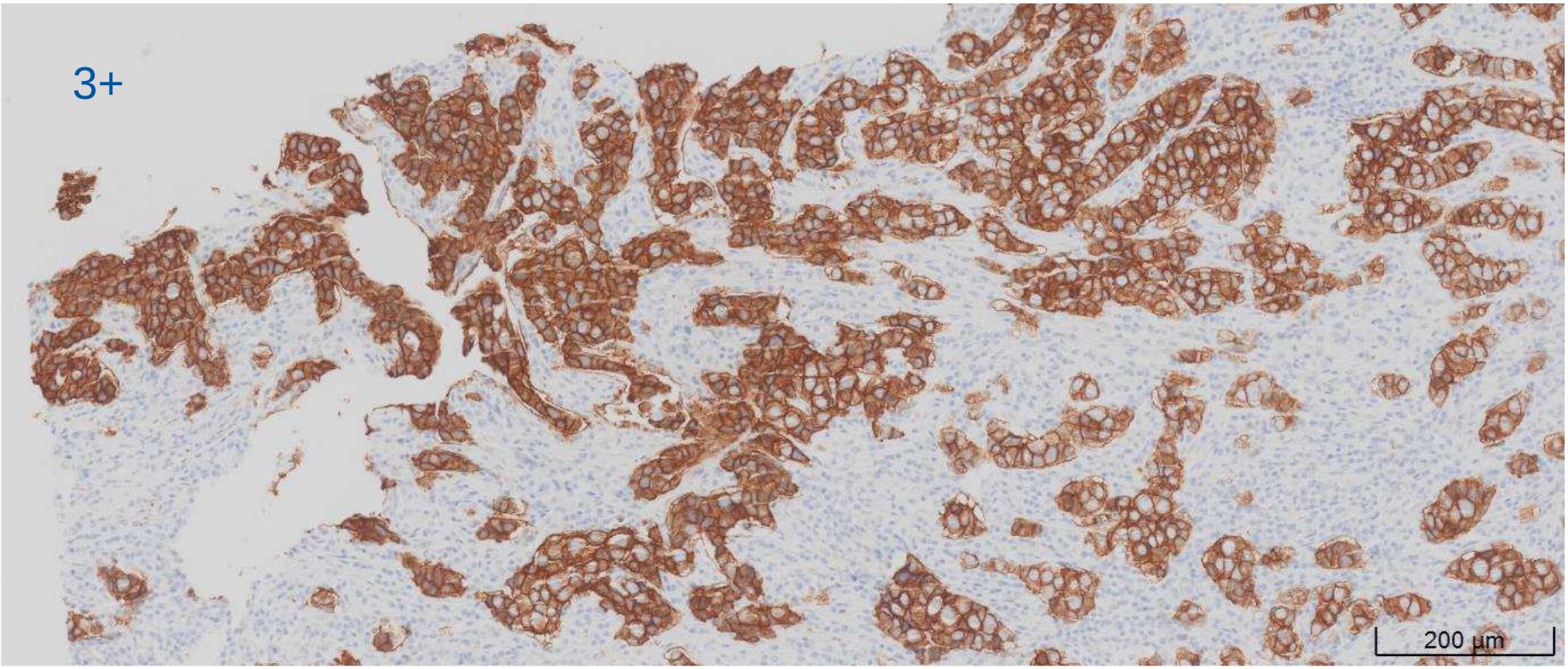
Antistof HER2 : overzicht



Antistof HER2 : overzicht

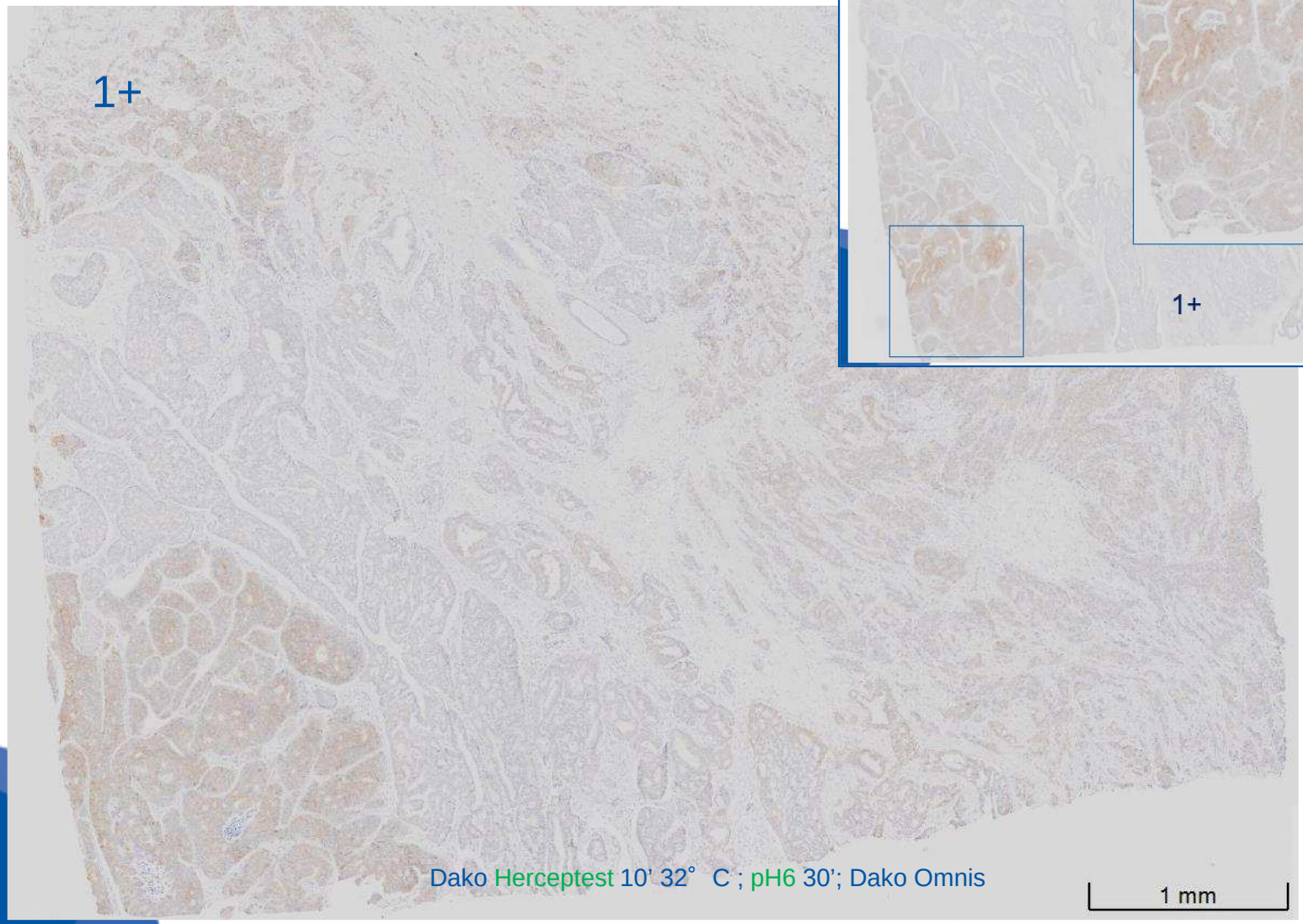


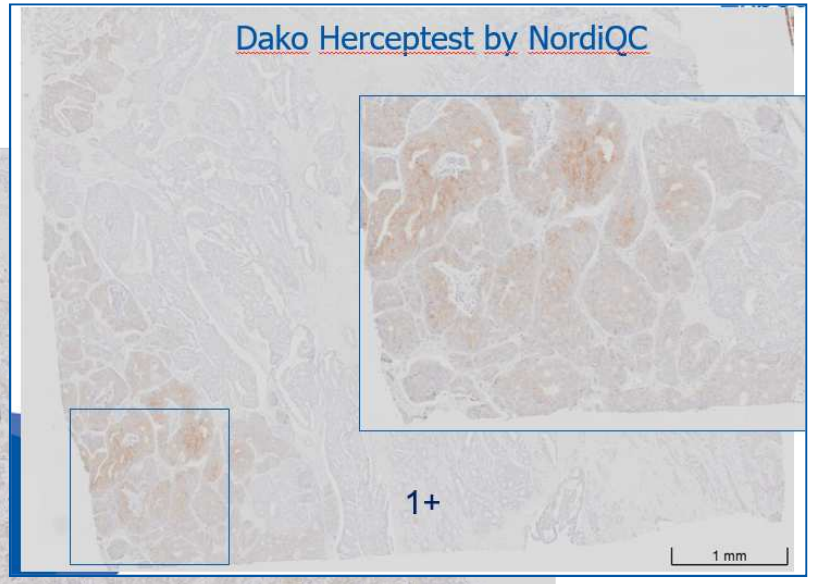
Antistof HER2



Dako Herceptest 10’ 32° C ; pH6 30’; Dako Omnis

Antistof HER2

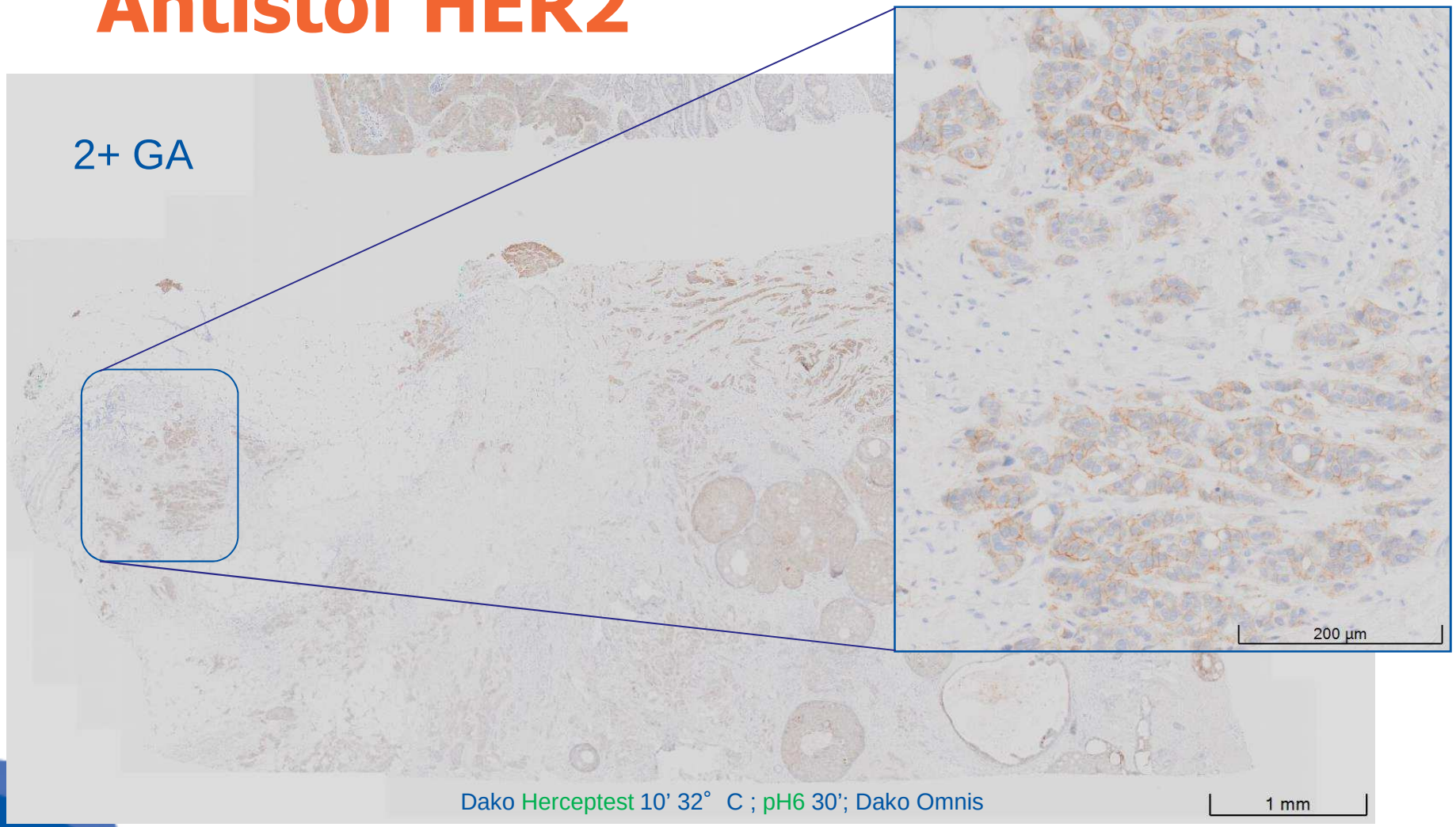




Dako Herceptest 10’ 32° C ; pH6 30’; Dako Omnis

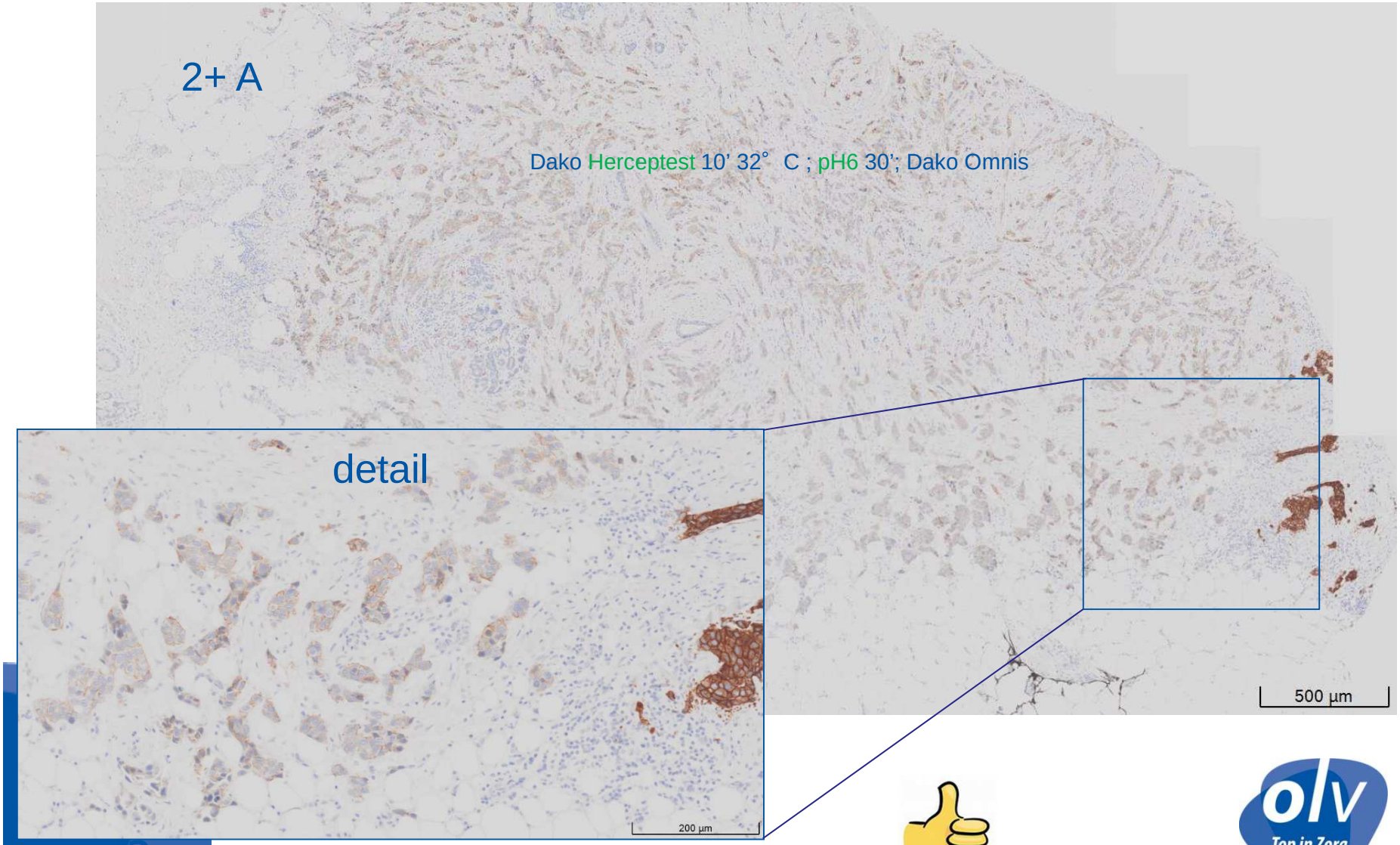
?

Antistof HER2

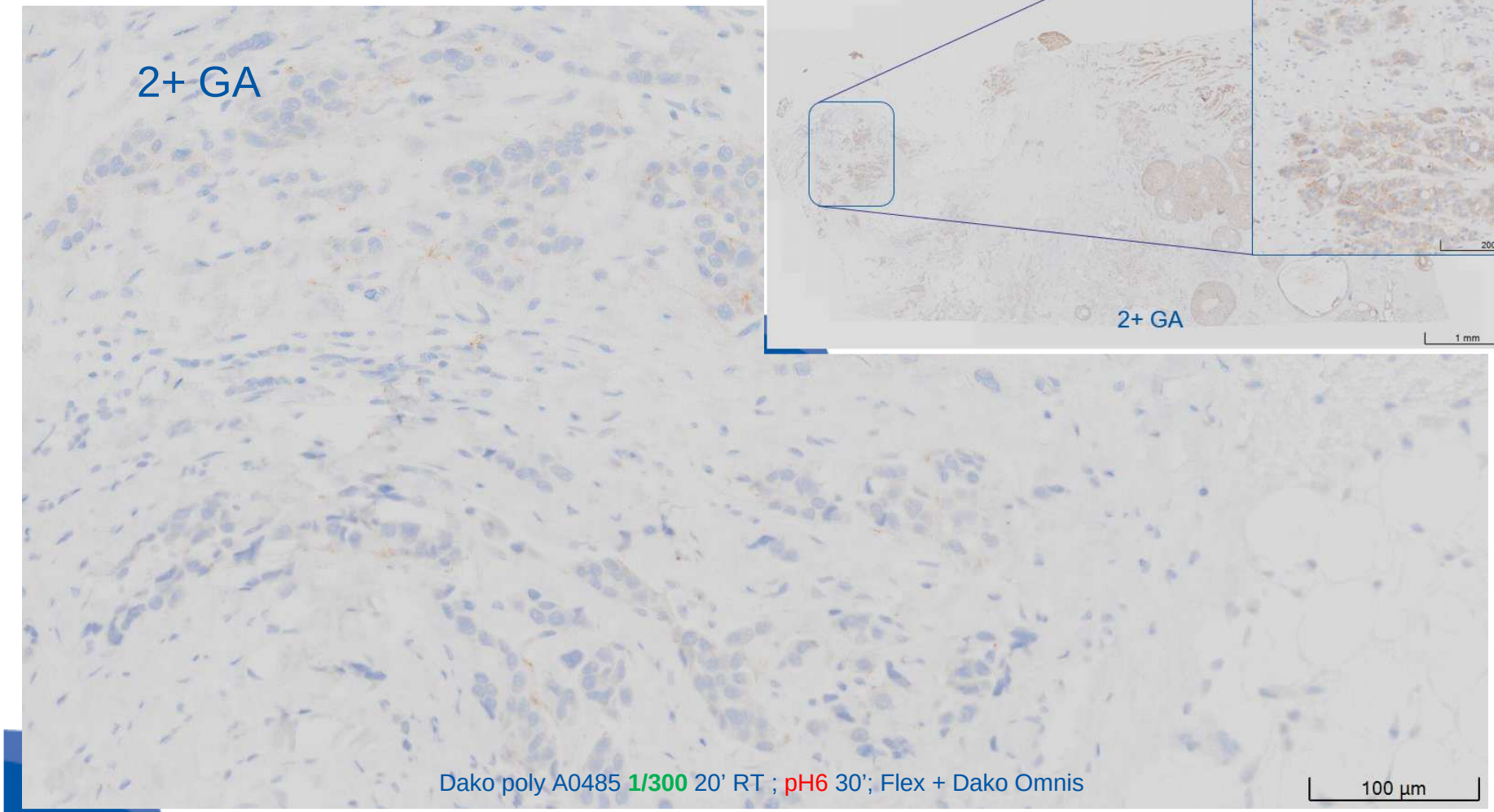


Dako Herceptest 10’ 32° C ; pH6 30’; Dako Omnis

Antistof HER2



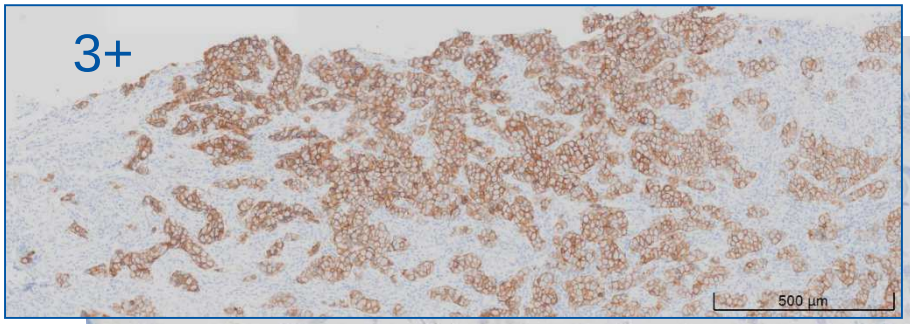
Antistof HER2

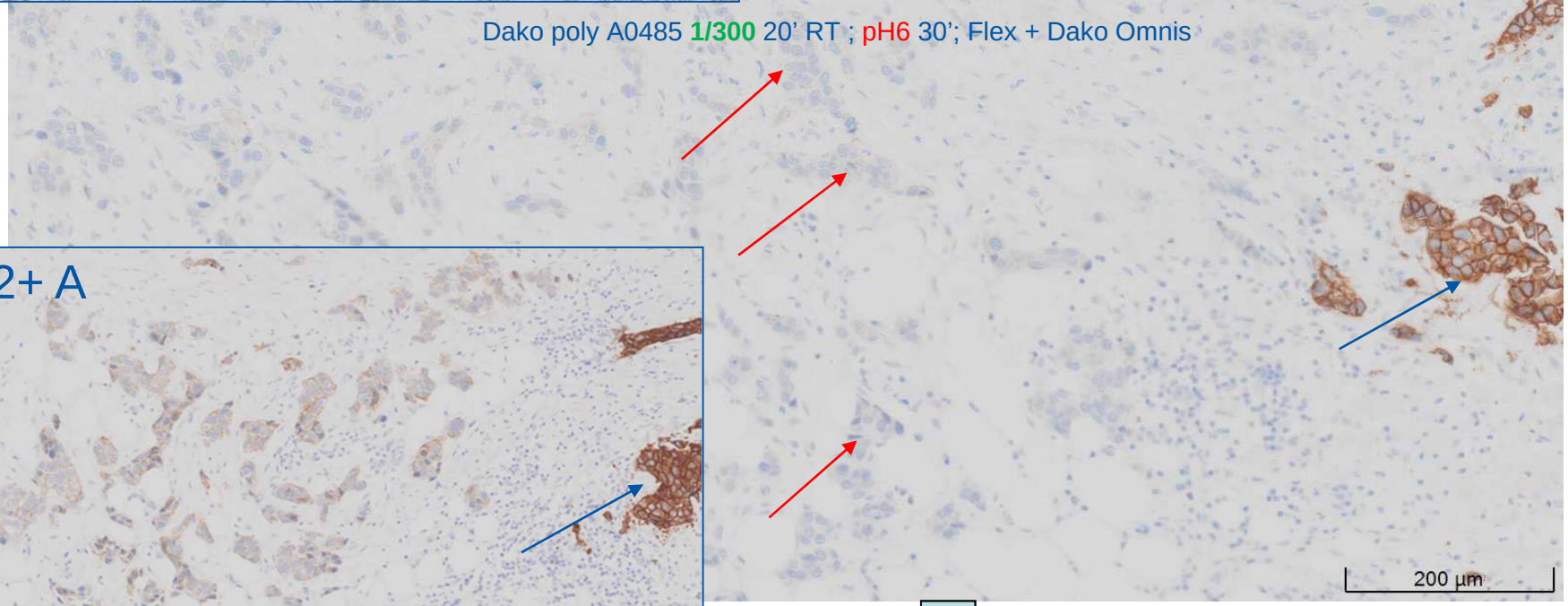


?

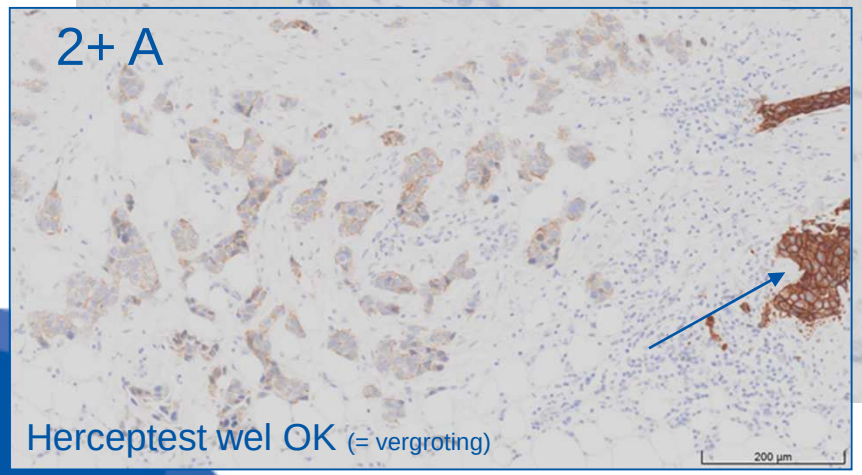
Eerder 1+ ipv 2+ : toegestaan wegens geen klinische impact (geen amplificatie) → 'goed'

Antistof HER2





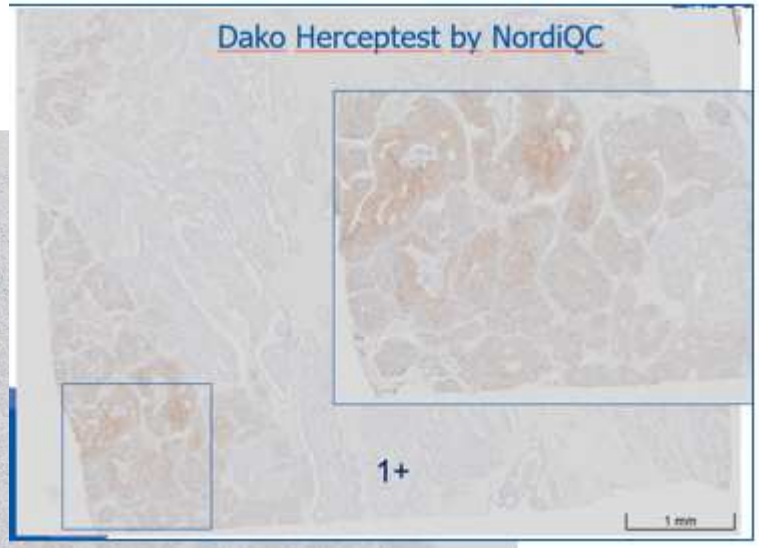
Dako poly A0485 **1/300** 20' RT ; pH6 30'; Flex + Dako Omnis

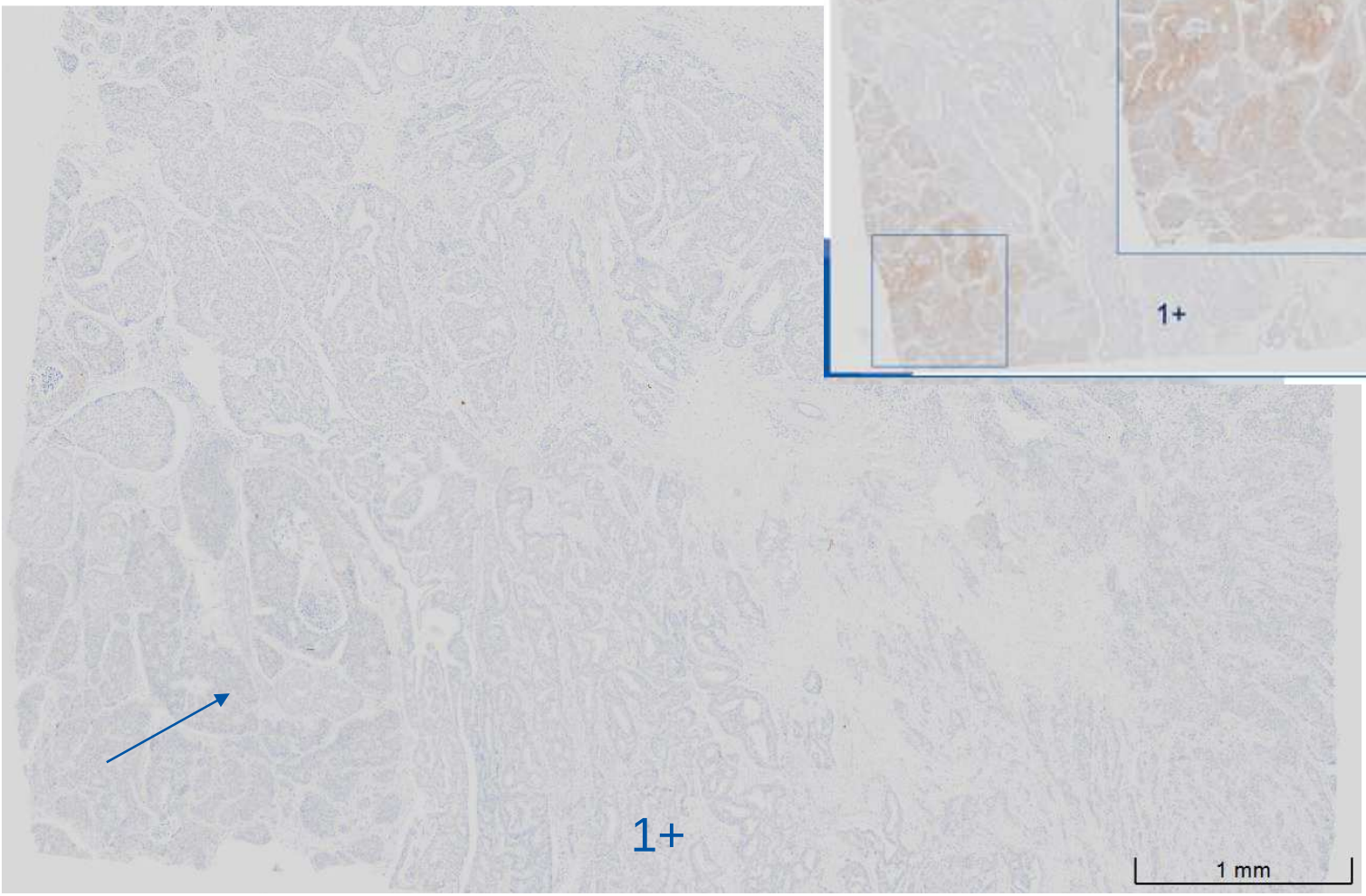


Herceptest wel OK (= vergroting)

Eerder 1+ ipv 2+ = vals negatieve interpretatie = geen SISH, mogelijk klinische impact
→ 'goed' omwille van geslaagde 3+

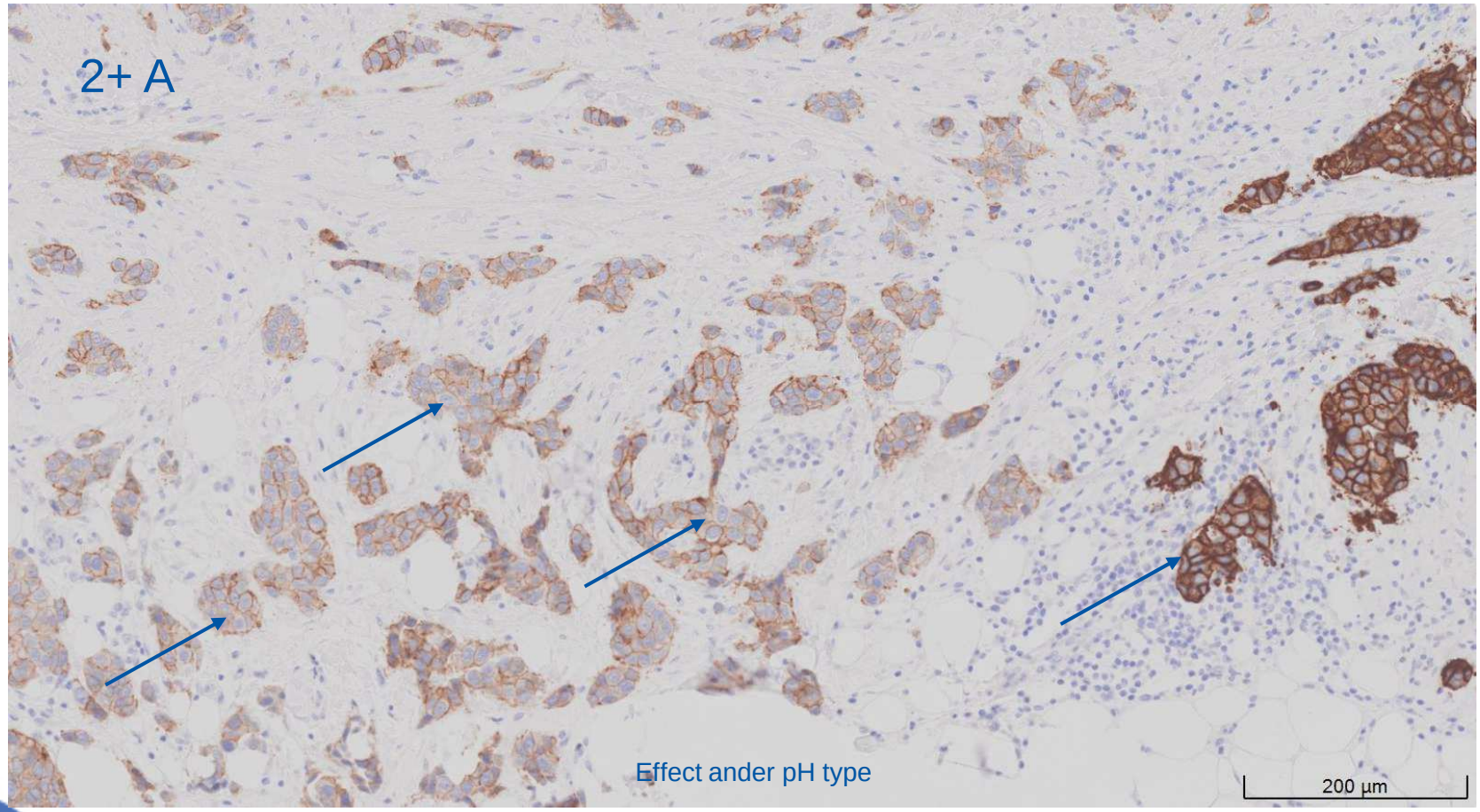
Antistof HER2





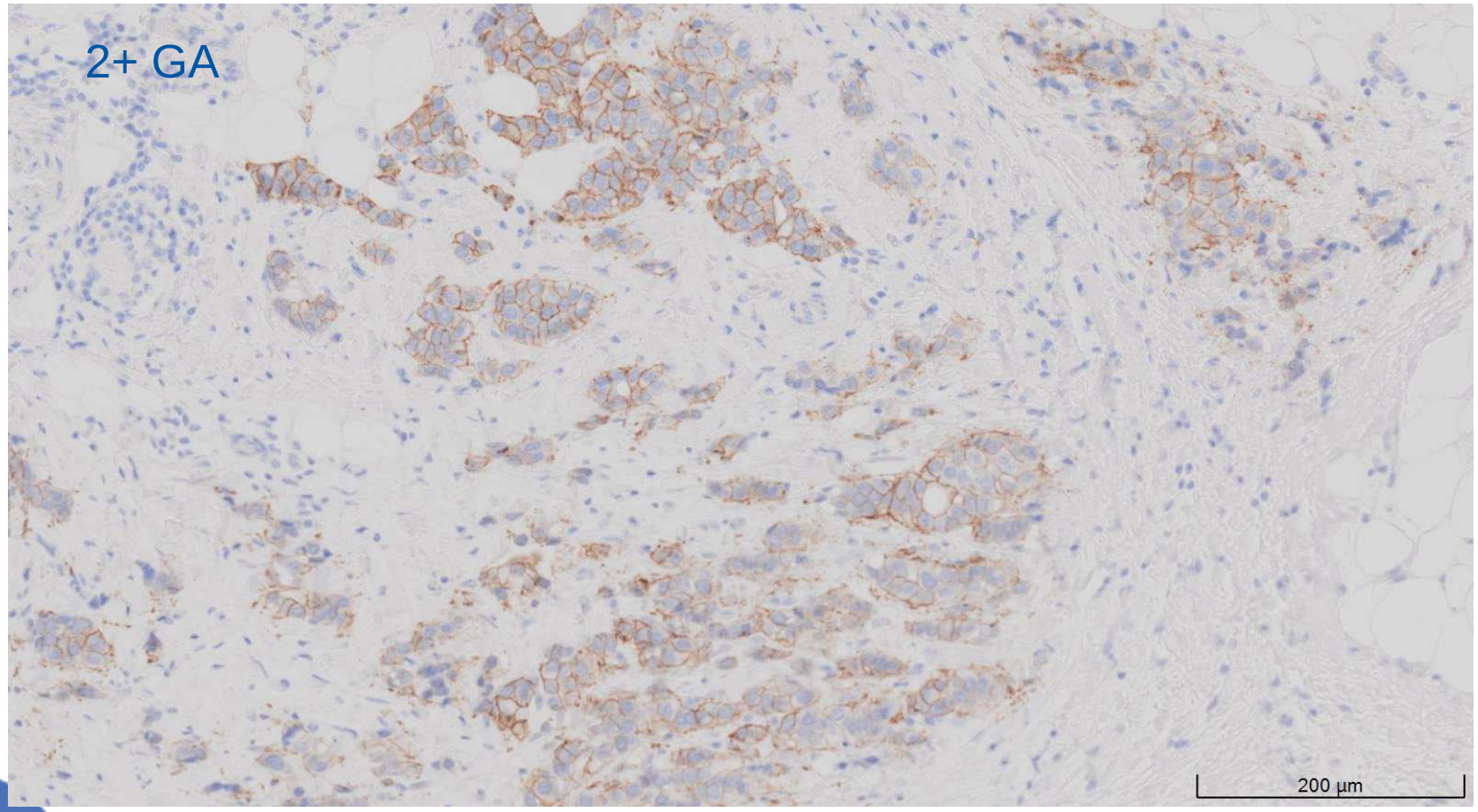
Dako poly A0485 **1/300** 20’ RT ; pH6 30’; Flex + Dako Omnis

Antistof HER2



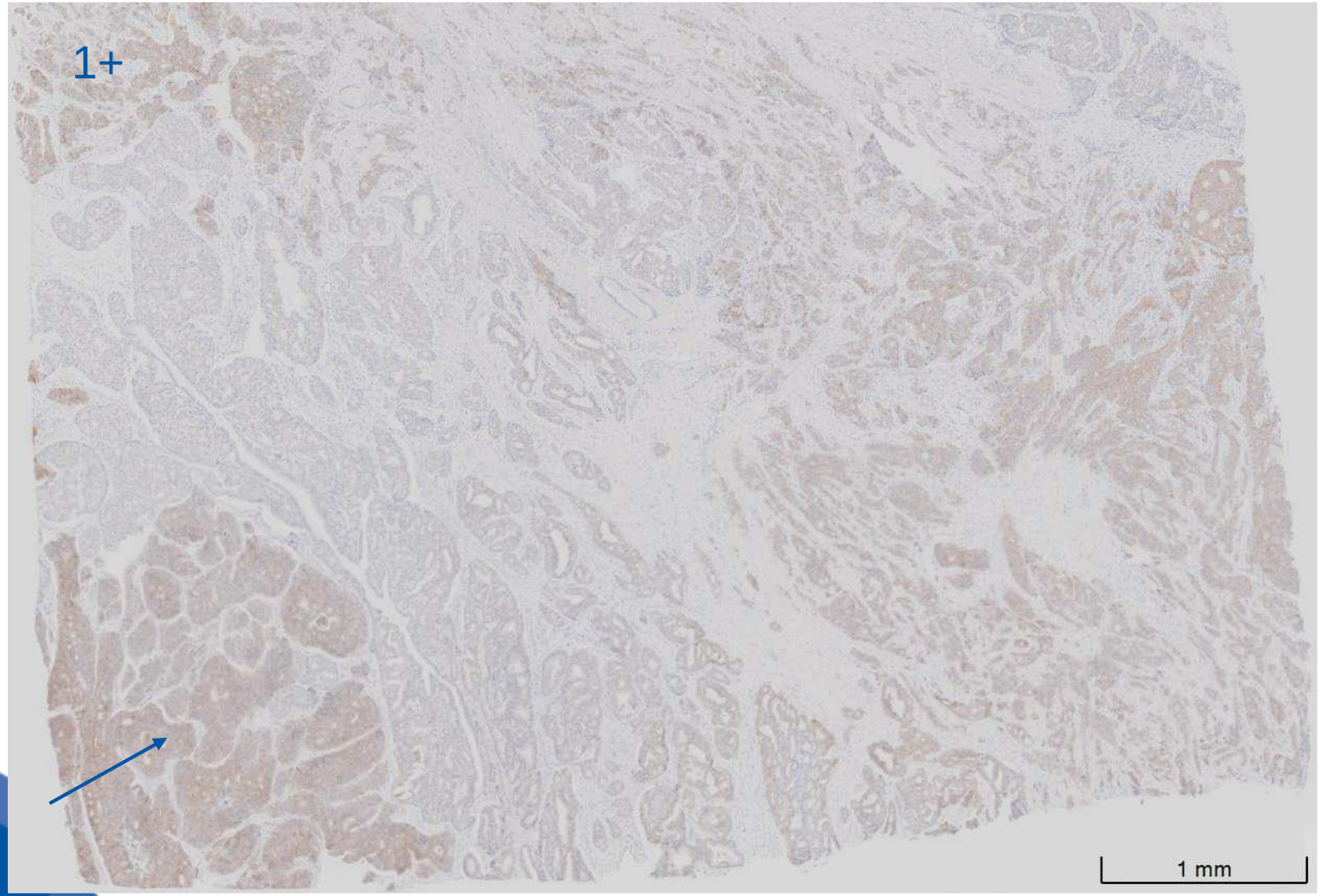
Dako poly A0485 **1/300** 20’ RT ; **pH9** 30’; Flex + Dako Autostainer

Antistof HER2



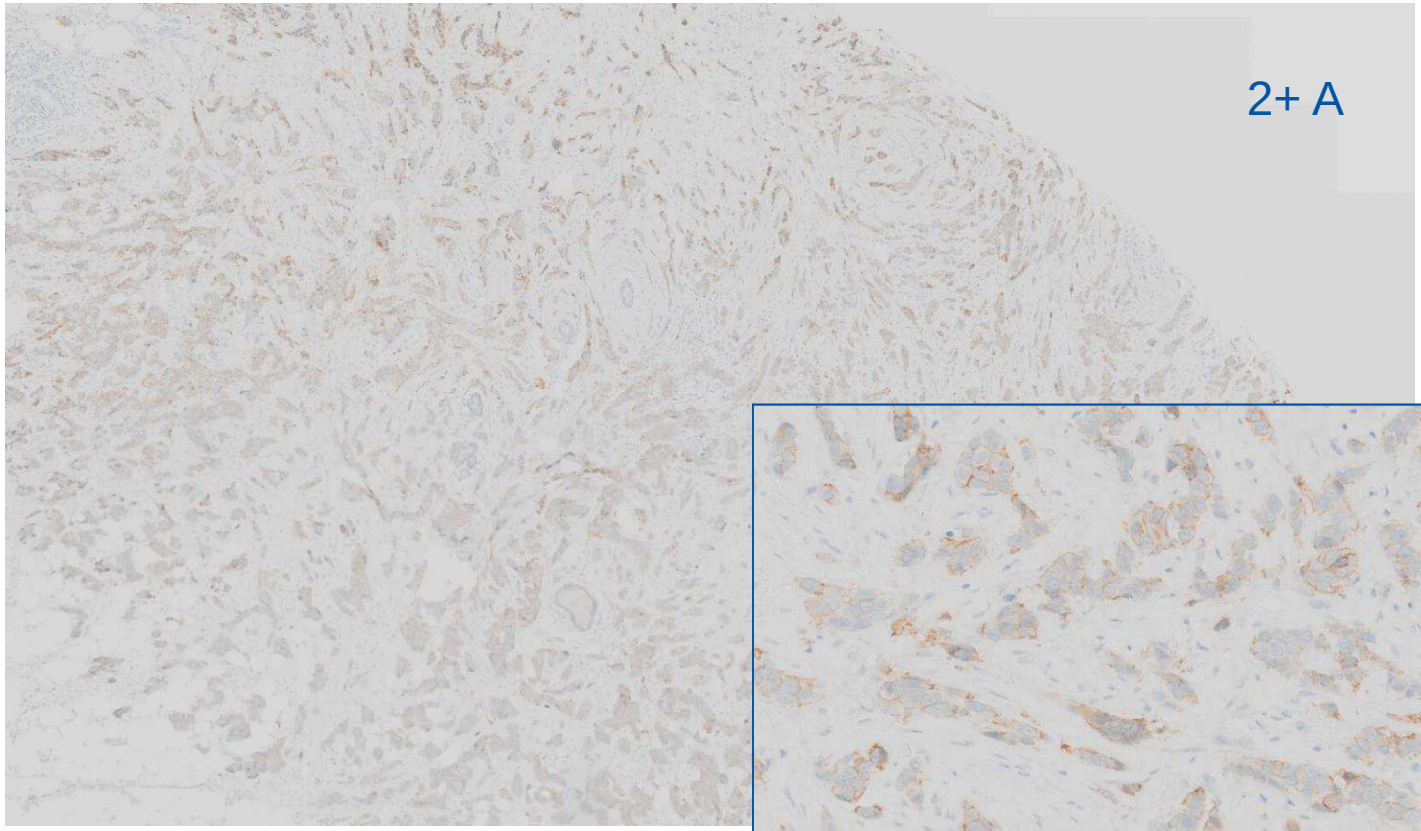
Dako poly A0485 **1/300** 20’ RT ; **pH9** 30’; Flex + Dako Autostainer

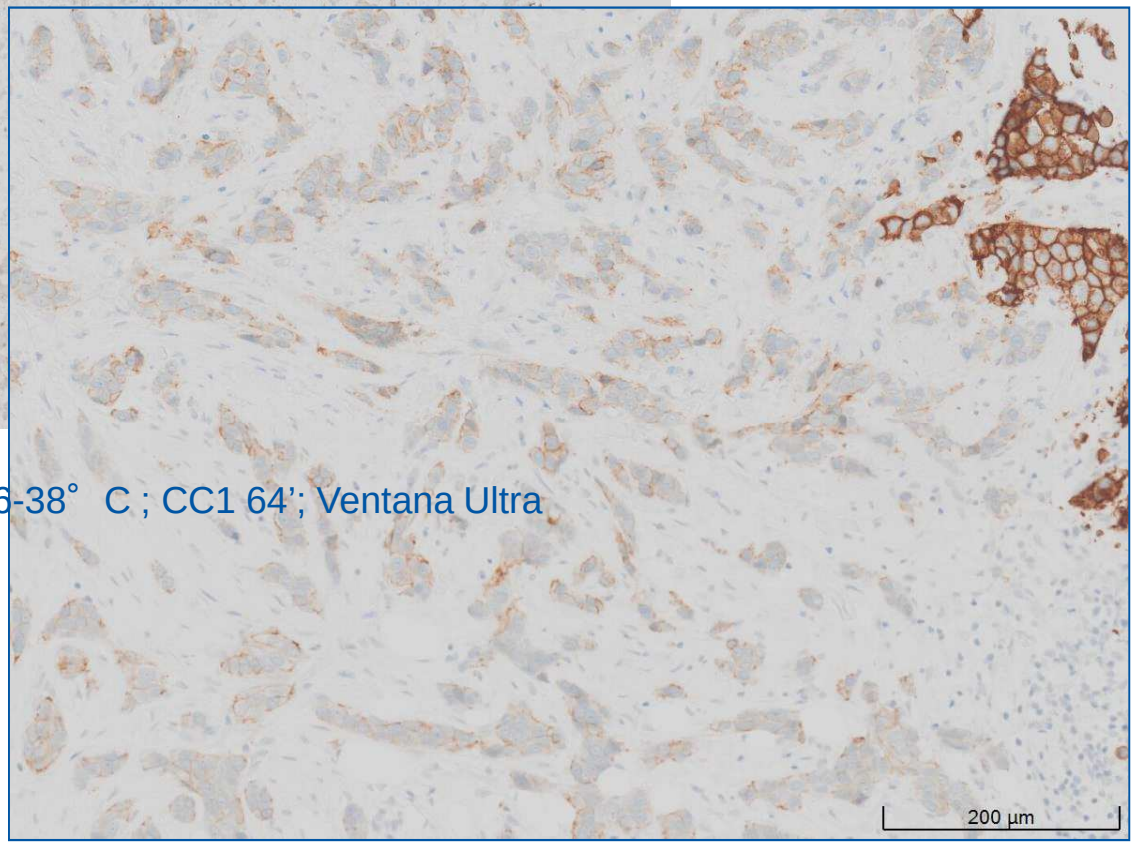
Antistof HER2



Dako poly A0485 **1/300** 20’ RT ; **pH9** 30’; Flex + Dako Autostainer

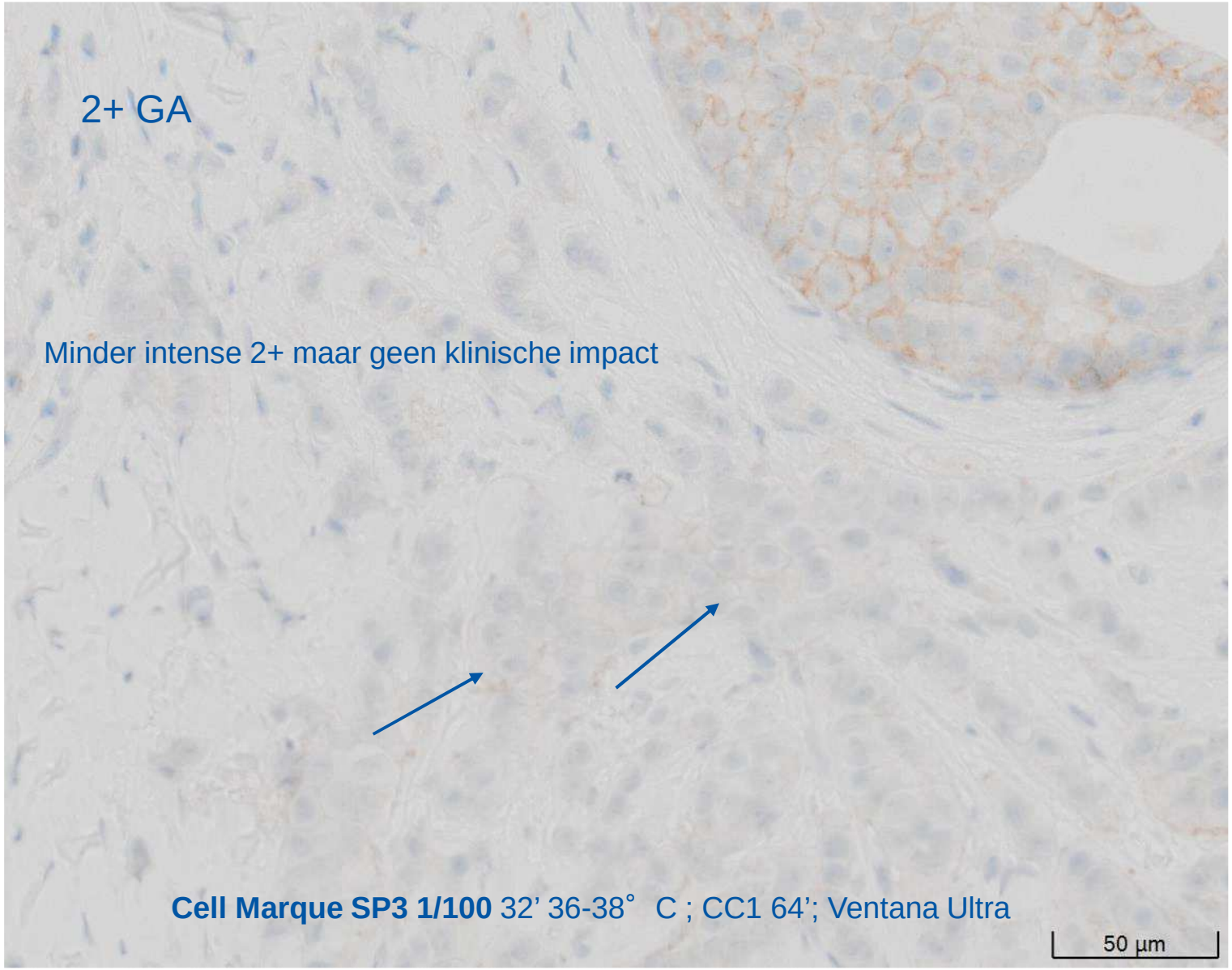
Antistof HER2



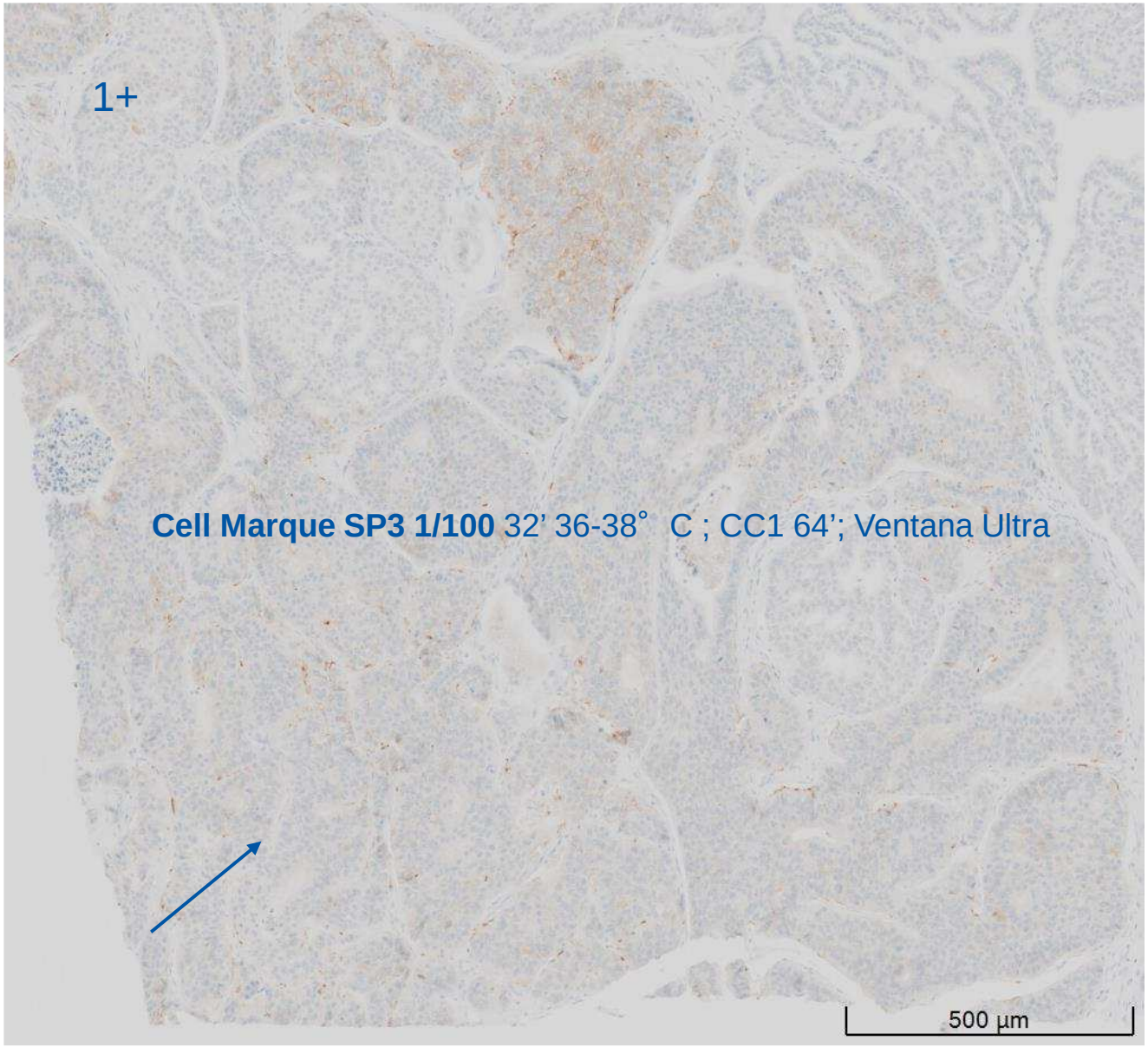


Cell Marque SP3 1/100 32’ 36-38° C ; CC1 64’; Ventana Ultra

Antistof HER2



Antistof HER2



Resultaatbespreking HER2

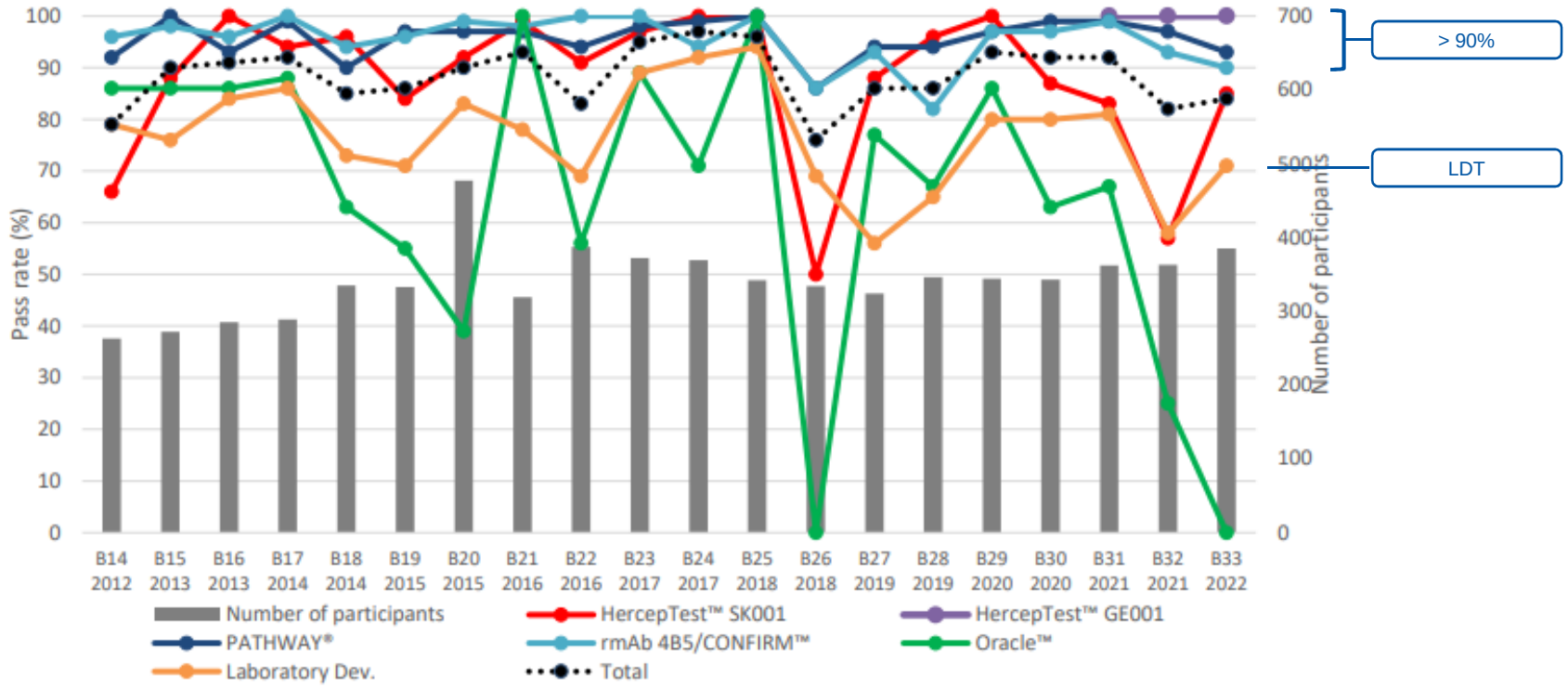
Algemeen resultaat 2022-1

n=60		2022-1		2020-3		*2020-1*		*2019-3*		*NQC run B33*	
	n		*suff*	*%*	*suff.*	*%*	*suff.*	*n*	*suff.*	*n=324*	*suff.*
optimaal	**53**	**88%**	**100%**	62,5%	67 %	*86 %*	*90%*	*53%*	*86%*	*58%*	*84 %*
goed	**7**	**12%**		3 %		*4%*		*33%*		*26%*	
borderline	0	-		8 %		*2%*		*1,5%*	*14%*	*3%*	
onvoldoende	0	-		26,5%		*7%*		*12,5%*		***13%***	

Resultaatbespreking HER2

Algemeen

Graph 1. **Pass rates* of the HER2 IHC assessments in the NordiQC breast cancer module 2012-2022**



* pass rates using vendor recommended protocol settings

Resultaatbespreking HER2

Opgesplitst per clone : conc.

	polyclonal Dako 2022-1	suff 2022-1	*polyclonal Dako 2020-3*	suff 2020-3	*2020-1**	suff 2020-1*	2019-3	suff 2019-3	C.Marque SP3
	n=18		n=22			n=21			n=1
optimaal	**13**	**72%**	**21**	**95%**	18	**85%**	6	**26%**	1
goed	**5**	**28%**	**0**	**-**	1	5%	9	39%	-
borderline	**0**	-	**0**	-	1	5%	0	-	-
onvoldoende	**0**	**-**	**1**	**5%**	1	**5%**	8	35%	-
Totaal suff	**100%**		**95%**		***90%***		***65%***		1/1
NQC B32 2021	*86% geslaagd 42% optimaal*								1/3 geslaagd

Eerdere NQC runs: B31 88% suff. / 56% optimaal
B30 95% suff. / 77% optimaal
B29 85% suff. / 44% optimaal

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Resultaatbespreking HER2

Opgesplitst per clone: RTU

	Herceptest Dako (poly+rm)					4B5 Ventana				
	2022-1	2020-3	2020-1	2019-3	2019-1	**2022-1**	2020-3	2020-1	2019-3	2019-1
optimaal	**6**	2	1	1	0	**32**	36	40	26	27
goed	**0**	0	0	0	0	**2**	3	0	11	7
borderline	**0**	0	0	0	0	**0**	0	0	1	3
onvoldoende	**0**	0	0	0	1	**0**	0	0	0	0
Totaal suff	**100%**	2/2	1/1	1/1	0/1	**100%**	100%	100%	86%	92%
NQC B32 2021	*Poly (VRPS) 85% suff. ; 54% optimaal* *rm DG44* (enkel VRPS) *100% suff. ; 35% optimaal*					*Pathway® (VRPS+LMPS) 90% suff. ; 74% optimaal* *4B5 (VRPS+LMPS) 90% suff. ; 73% optimaal*				

VRPS = vendor recommended protocol settings
LMPS = lab modified protocol settings

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Resultaatbespreking HER2

Opgesplitst per clone: RTU

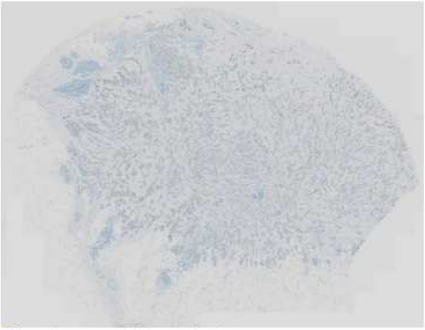
	CB11 Leica Novocastra				
	2022-1	2020-3	2020-1	2019-3	2019-1
optimaal	1	0	1	0	0
goed	0	1	0	1	0
borderline	0	0	0	0	1
onvoldoende	0	0	0	0	0
Totaal suff	**1/1**	**1/1**	1/1	1/1	0/1
NQC B32 2021	*4/6 geslaagd , 1/6 optimaal (enkel LMPS)*				

VRPS = vendor recommended protocol settings
LMPS = lab modified protocol settings

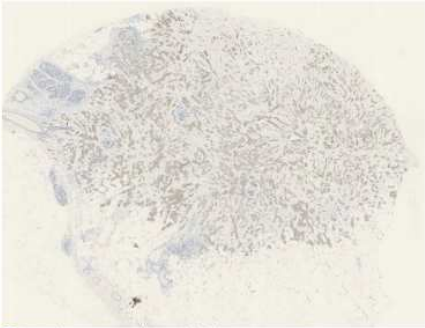
Resultaatbespreking HER2

Besluit:

- 100% deelnemers geslaagd ; 88% optimaal
- 2+ amplified core: homogeniteitstest: 3+ subkloon
  - Niet aanwezig in validatiecoupes → mogelijke impact op % geslaagd resultaat
  - 2 deelnemers: geen aantoonbare 2+ status in 2+ amp core, maar geslaagd o.w.v. geslaagde 3+ subkloon → klinische impact mocht deze subkloon niet aanwezig geweest zijn

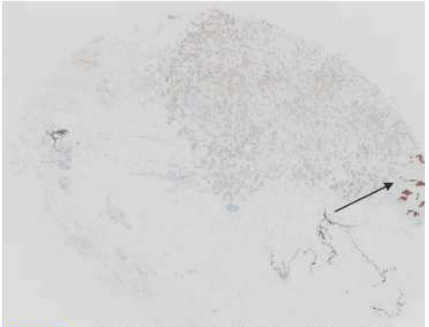


Biopt 4 : coupe vrijgave Roche



Biopt 4 : coupe vrijgave Agilent

Biopt 4 : coupe van de eerste deelnemer (coupe 5)



Biopt 4 : coupe van de laatste deelnemer (coupe 70)

Resultaatbespreking HER2

Besluit:

- Per AS
  - 36% conc. vs 64% RTU → 32% conc. vs 68% RTU
  - Herceptest: nu 6 gebruikers, allen Omnis ~10% EKE ~NQC
  - 30% EKE gebruikt poly AS Dako <> NQC B32: 13%
  - 57% EKE gebruikt 4B5 clone <> NQC B32: 67%

- Per toesteltype:
  - Dako Autostainer: allen poly AS Dako
  - Dako Omnis: 35% gebruikt nu Herceptest
  - Ventana platformen: 1 wijziging
    - 2/39 poly AS Dako (sterk wisselend protocol: verd./amplifier) → geen invloed: beiden optimaal
    - 1 lab gebruikt SP3 clone: optimaal

Resultaatbespreking HER2

Besluit:

- Vraag naar beoordeling Her 2 kleuring
  - Globaal OK, geen overinterpretatie (bv. 3+ ipv 2+), maar
  - 2+ amp core:
    - 4 deelnemers hebben – hoewel aankleuringspatroon OK was – deze foutief geïnterpreteerd als 1+ → bemerking in individueel rapport
    - Enkele deelnemers hebben ook aanwezigheid van 3+subkloon gerapporteerd = OK

Antwoorden	Biopt 1	Biopt 2	Biopt 3	Biopt 4	Biopt 5
Verwacht resultaat	0/NA*	1-2+/NA	1-2+/NA	2+/A*	3+/A
0	93%	7%	3.5%	-	-
1+	5%	68%	32%	7%	-
2+	2%	25%	64.5%	66%	-
3+	-	-	-	27%	100%

(*) NA = not amplified, A = amplified

Bron: Sciensano globaal rapport

- Gebruik controles:
  - Verplichting EKE, conform dagelijks gebruik
  - Controle: 93% OK (2020-3 98%; 2020-1: 92% ; 2019-2: 98,5% ; 2019-1: 55%)
  - Conformiteit?
    - Perfecte controle = dynamic range
    - 0, 1+ en/of 2+ (voorkeur amplified), 3+
    - 100% conform (2020-3: 94% ; 2020-1: 93% conform ; 2019-3: 83% conform guidelines)

Controls
Inclusion of 2+ tumours with and without HER-2 gene amplification in the control material for both EQA and internal quality control is essential to evaluate precision and performance stability of the IHC HER-2 assay.
(bron NordiQC)

olv Top in Zorg.

o/v
Top in Zorg.

Protocol ER

n= 62

Conc.: n=3

- Dako: rm clone EP1: n=1
- Cell Marque: rm clone SP1: n=2
- Leica Novocastra: geen

RTU: n=58

- Dako: rm clone EP1 : n=22
- Roche/Cell Marque: rm clone SP1 : n=34
- Leica Novocastra: mm clone 6F11: n=2

Protocol ER

Conc. AS

- EP1 Dako
  - 1/50 20’ bij 32° C ; pH9 30’ Flex+ met linker 10’
- SP1 Cell Marque
  - 1/50-1/100 16-32’ bij 36° C. +amp 4’ ; HIER CC1 64’
  - 3 stap detectie (OV)

Protocol ER

RTU clone SP1 (Ventana/Cell Marque)

Protocol:

- UView: 34
  - AS 16' – 40' bij 36° C (42% 16' AS) ; +/- 4' tot 16' amp
  - HIER CC1 8' – 64' (56% 'standard' CC1)
  - Datasheet 2013: HIER 60' , AS 16' → 21% (-3%) ↗
- iView: geen
- optiView: 1
  - geen datasheet beschikbaar
  - AS 16-32 ' bij 36° C geen amplifier; CC1 64'

RTU clone 6F11 (Leica)

- Bond III: 15' RT ; HIER pH6 of pH9 20'

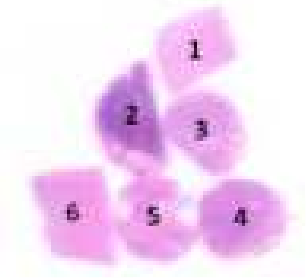
Protocol ER

RTU clone EP1 (Dako)

Protocol:

- Autostainer (4): ↓
  - Datasheet: 20'RT ; pH9 tijd?
  - AS: 20'-40' bij RT → 50% datasheet
  - Envision Flex+ ; 3/4 linker 15'
  - HIER pH9 10'
- Omnis (18): ↑
  - 10' - 20' – 27'30" bij RT of 32° C
    - 83% gebruikt 10' bij 32° C = datasheet? (laatste EKE ~60%)
    - 17% inc. bij RT
  - Envision Flex+ ; 1x linker 5'
  - HIER pH 9: 30'

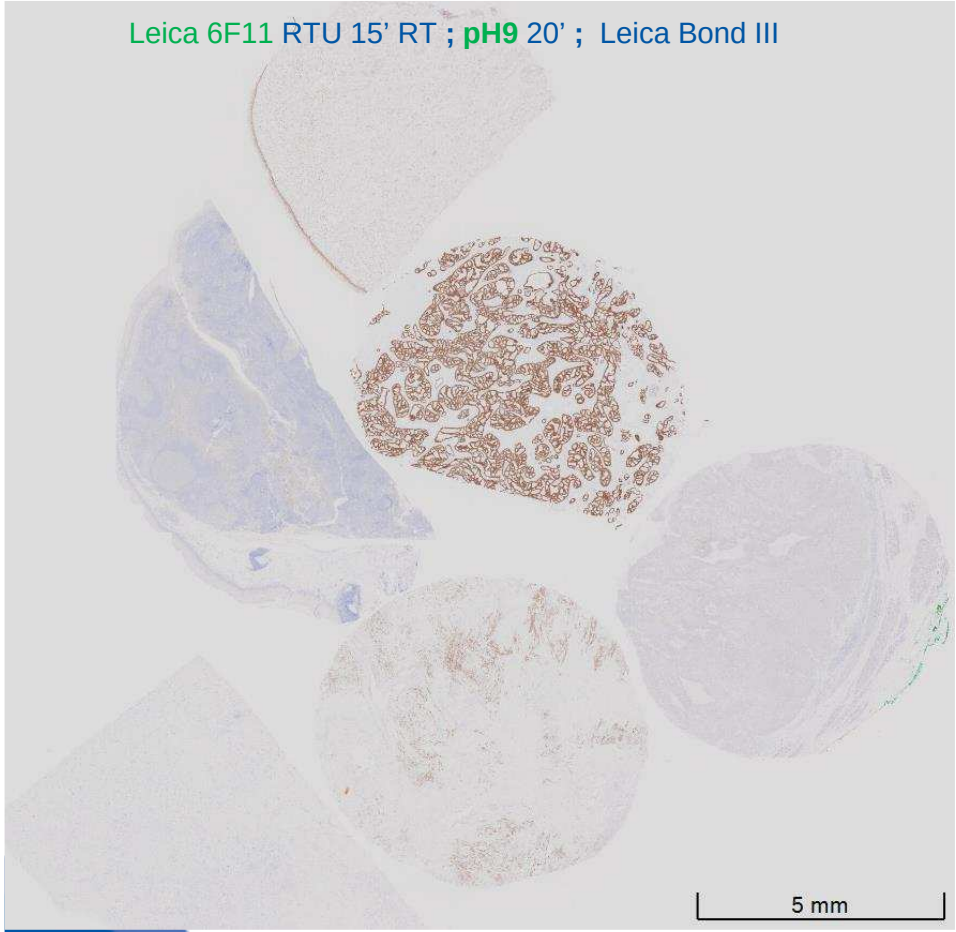
Scoringscriteria ER

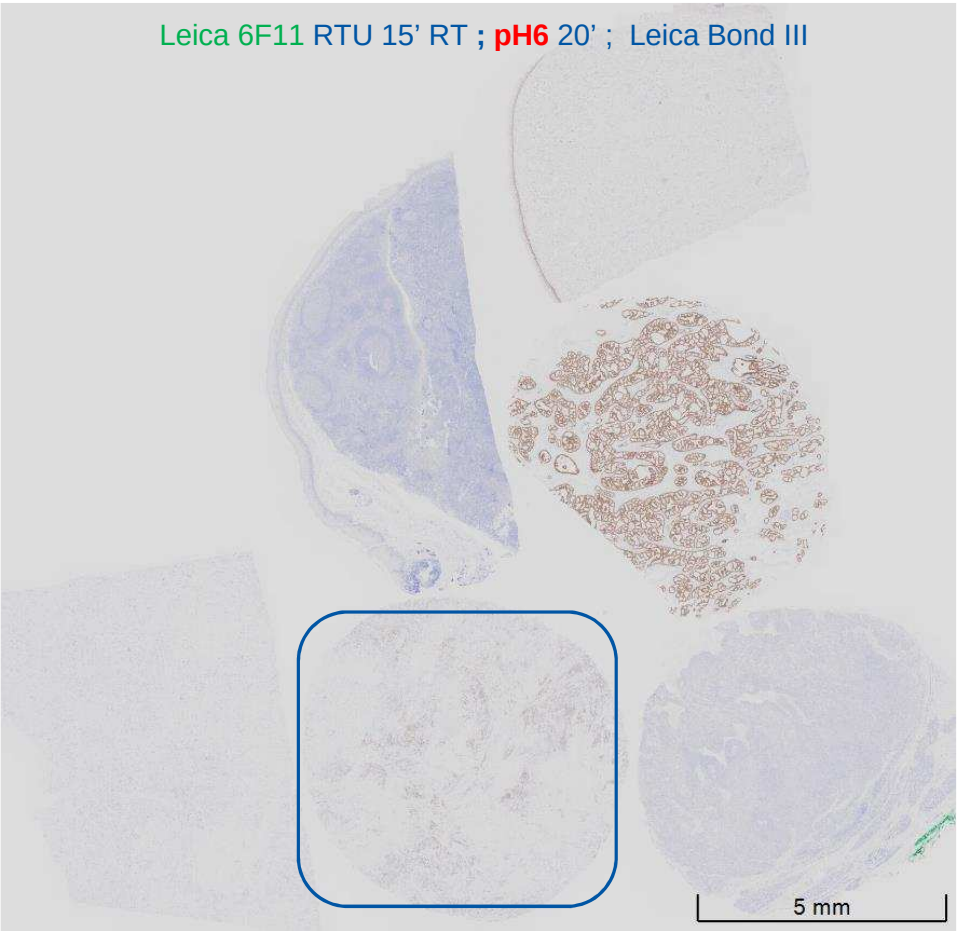


Aankleuringspatroon: nucleair

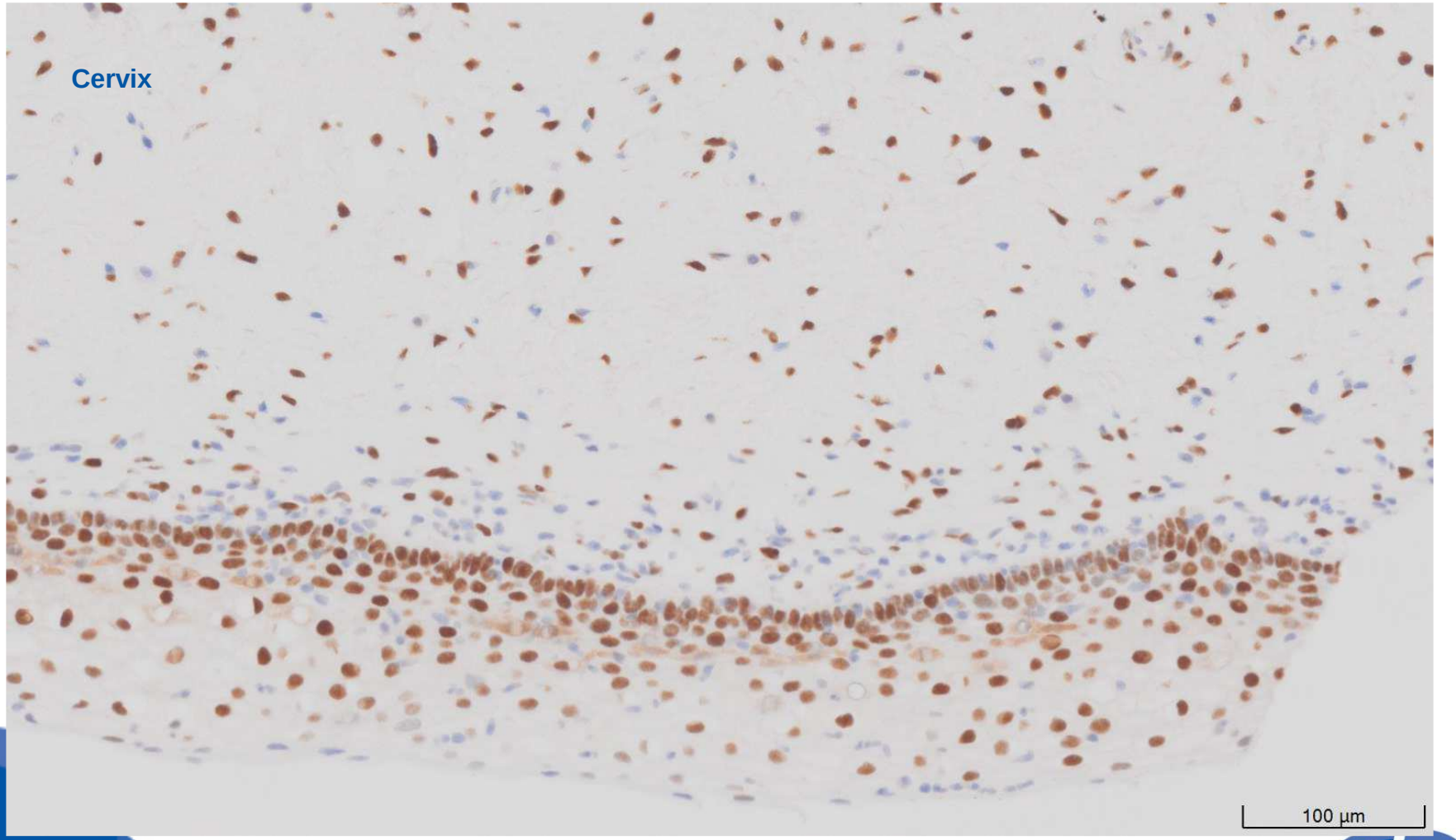
- Cervix : matig tot sterke nucleaire aankleuring van bijna alle columnair epitheel, basaal squameus epitheel en de meeste stromale cellen (uitgezonderd endotheliale en lymfoïde cellen)
- Tonsil : minstens zwak tot matige nucleaire aankleuring in verspreide folliculaire dendritische cellen/T-cellen en plaveiselcelepitheel
- Borstcarcinoom core 3 : sterke nucleaire aankleuring in 100% van de tumorale cellen
- Borstcarcinoom core 4 : zwakke nucleaire aankleuring in 1-10% van de tumorale cellen (zwakke expressor)
- Borstcarcinoom core 5: matige nucleaire aankleuring in 80-90% van de tumorale cellen
- Borstcarcinoom core 6: geen nucleaire aankleuring in de tumorale cellen

Antistof ER


Leica 6F11 RTU 15’ RT ; pH9 20’ ; Leica Bond III
5 mm


Leica 6F11 RTU 15’ RT ; pH6 20’ ; Leica Bond III
5 mm

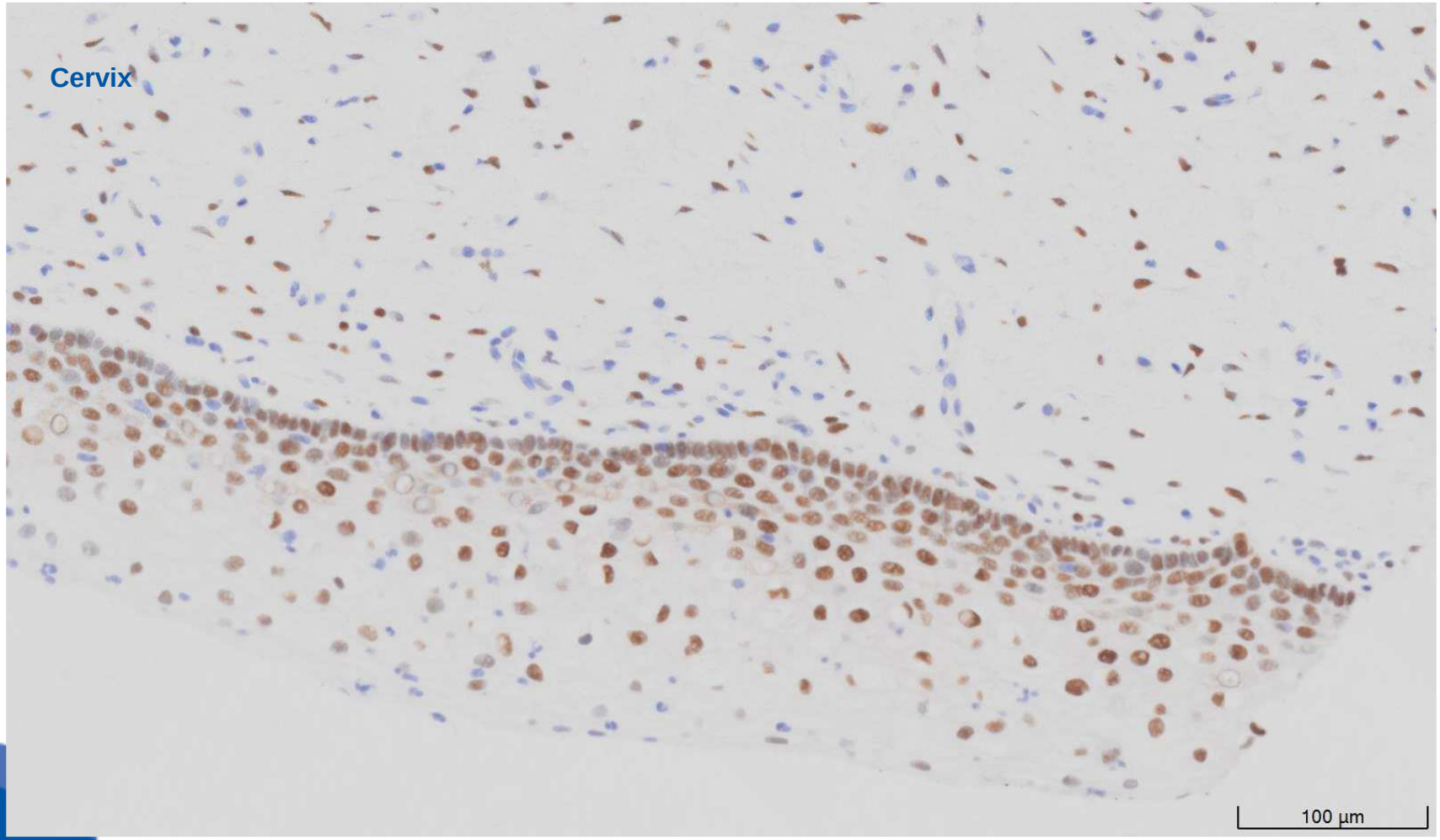
Antistof ER



Leica 6F11 RTU 15’ RT **; pH9** 20’ **;** leica Bond III

Optimaal

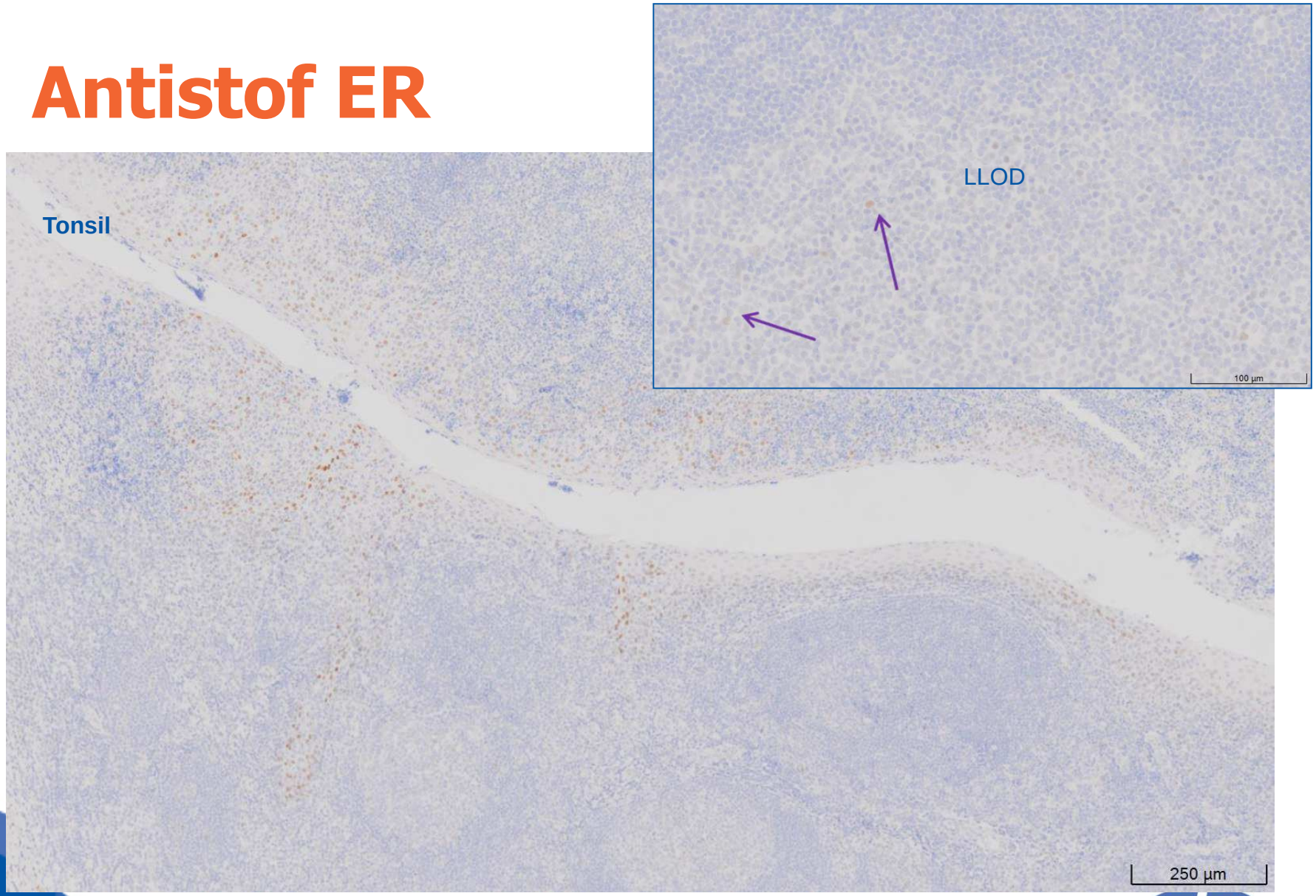
Antistof ER



Leica 6F11 RTU 15’ RT ; **pH6** 20’ ; Leica Bond III

OK want sterke expressor

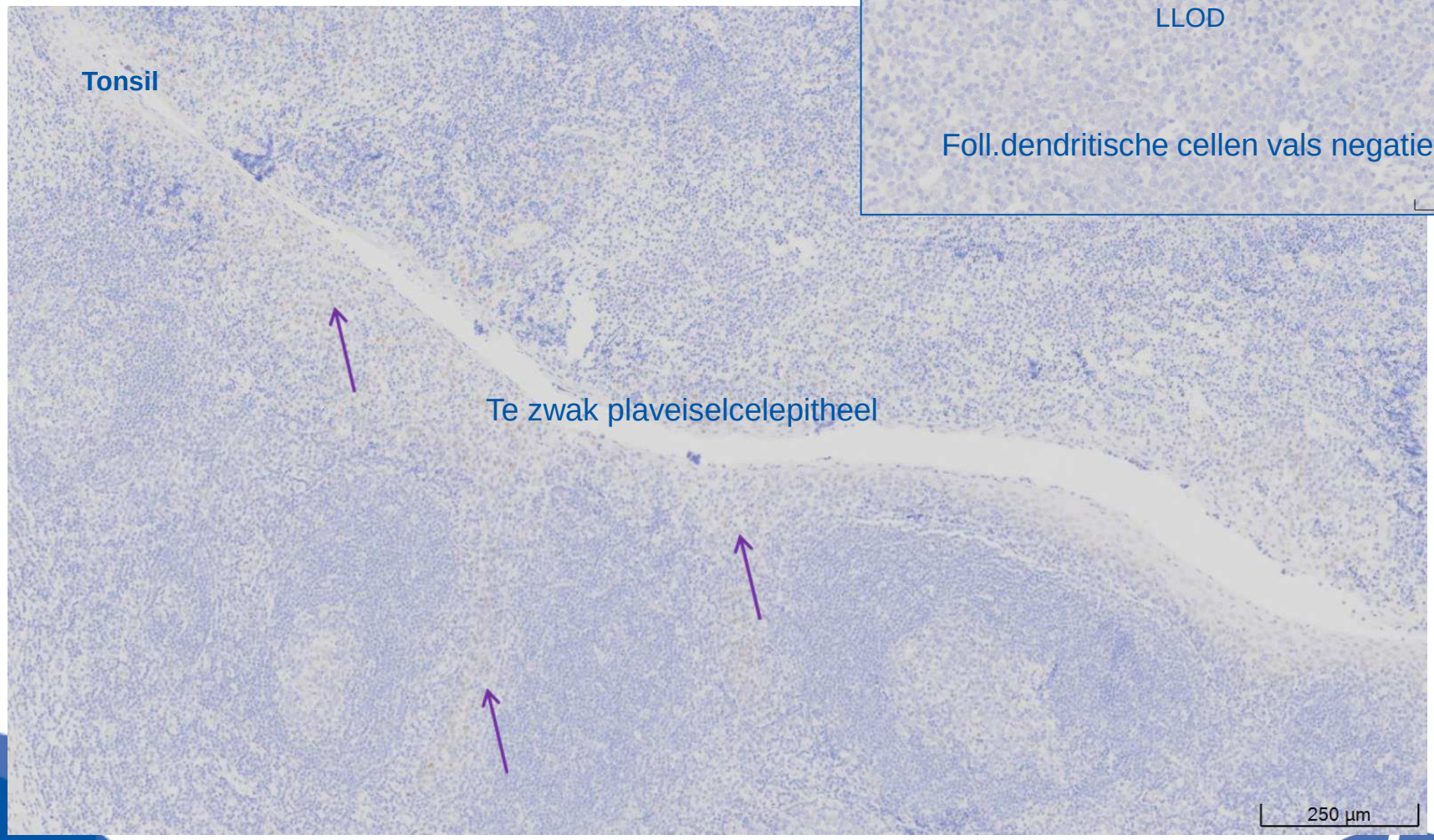
Antistof ER



Leica 6F11 RTU 15’ RT ; **pH9** 20’ ; Leica Bond III

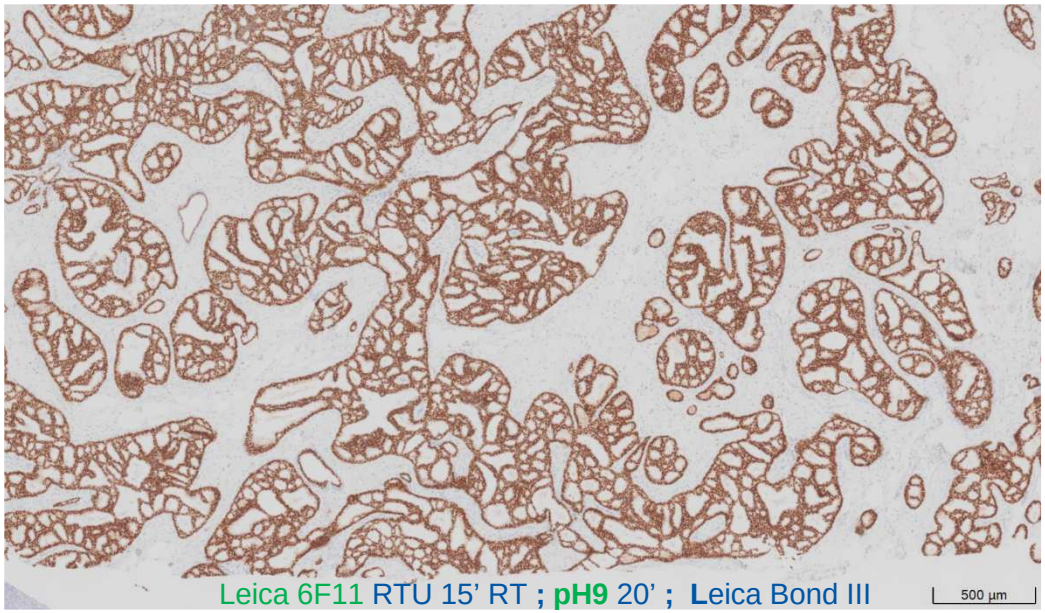
Optimaal

Antistof ER



Leica 6F11 RTU 15’ RT ; **pH6** 20’ ; Leica Bond III

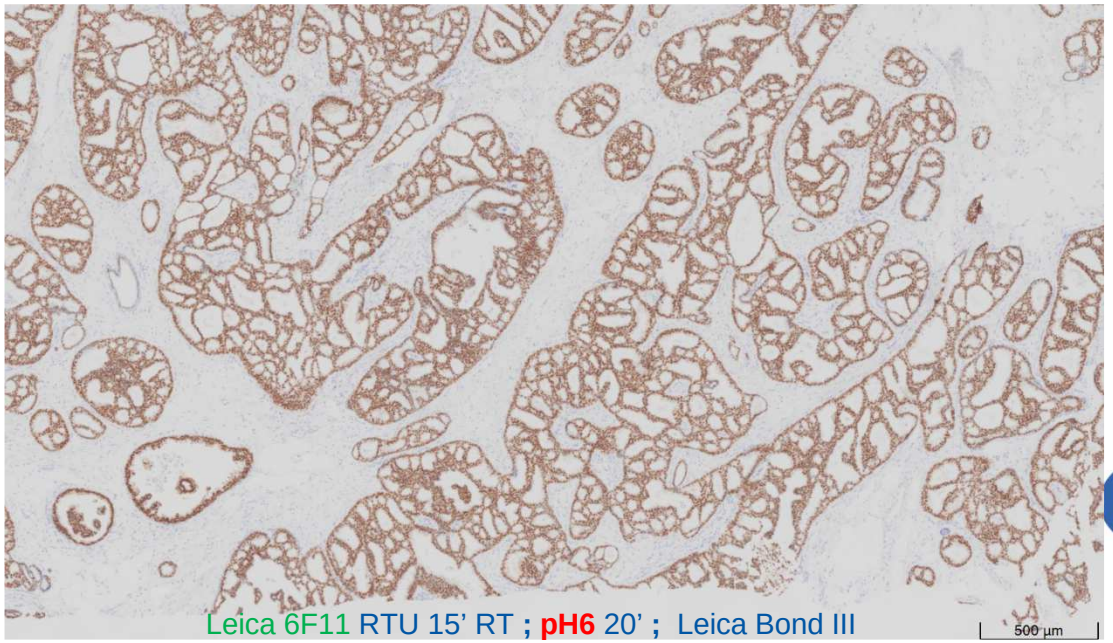
Antistof ER



Leica 6F11 RTU 15’ RT ; **pH9** 20’ ; **L**eica Bond III

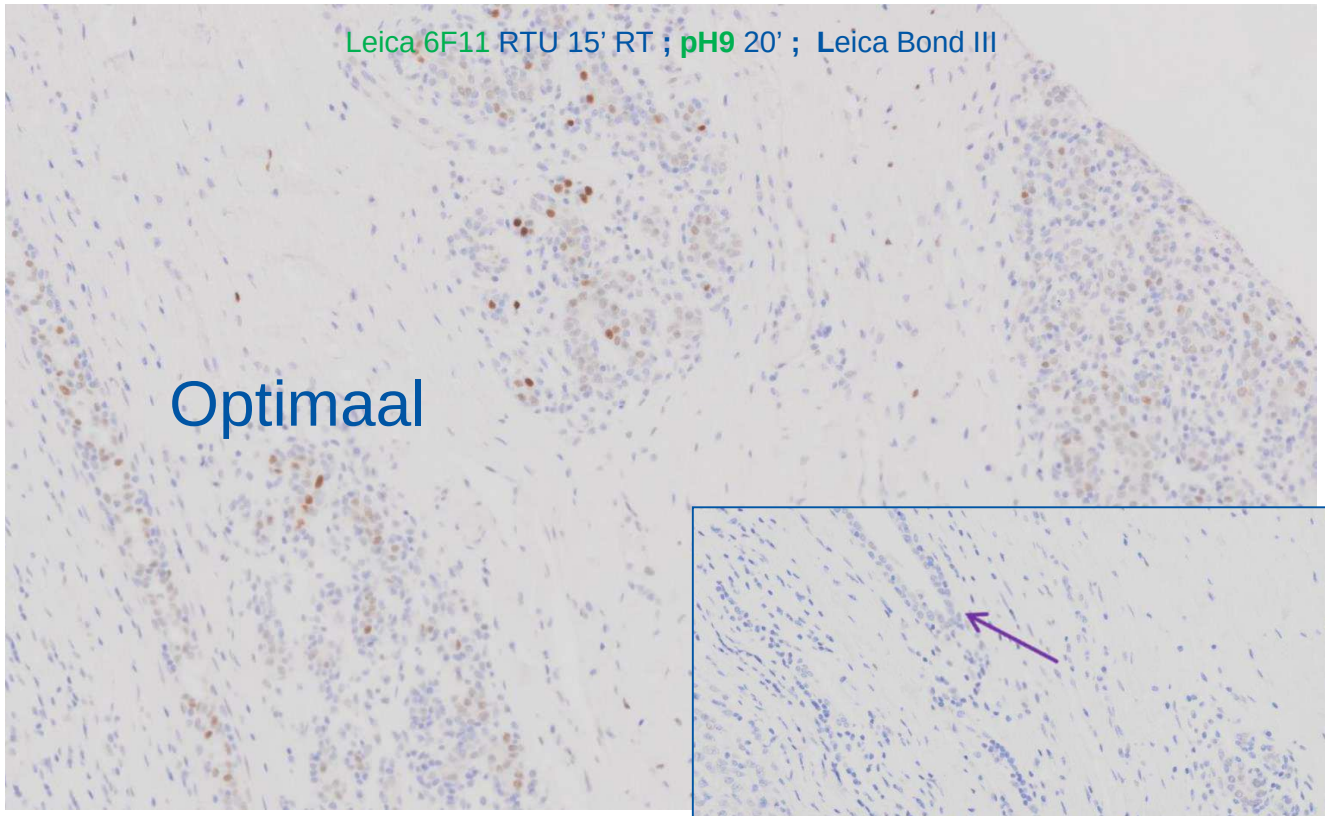
Core 3 = 100%

Optimaal

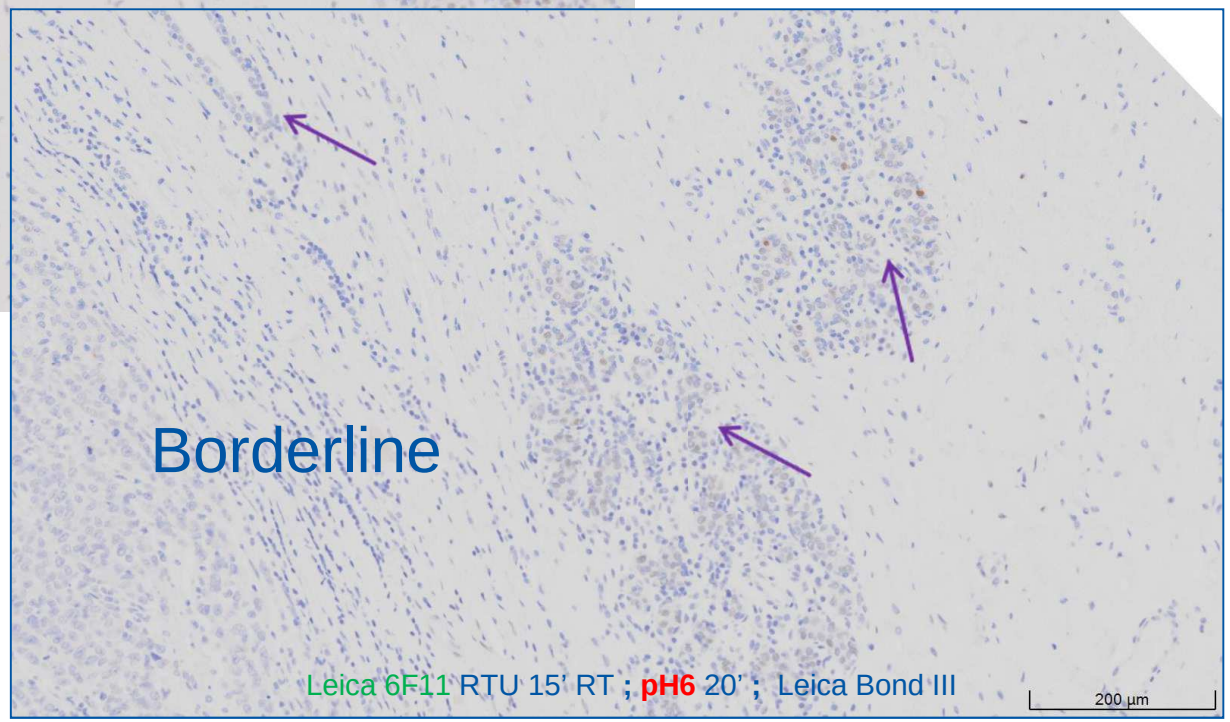


Leica 6F11 RTU 15’ RT ; **pH6** 20’ ; Leica Bond III

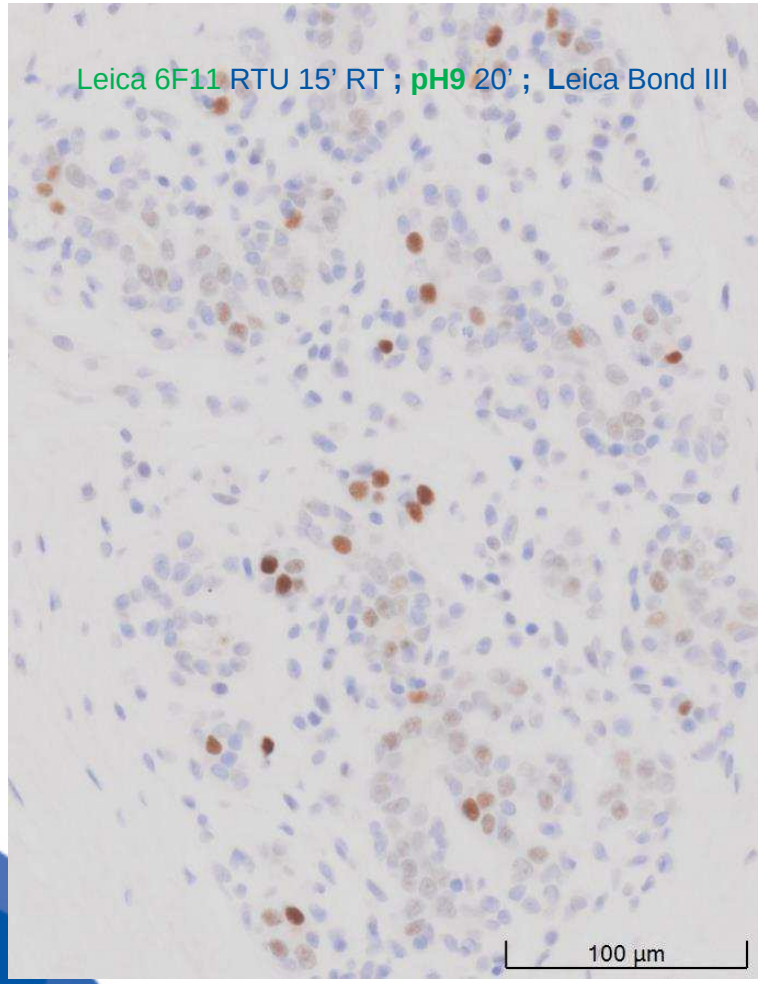
Antistof ER

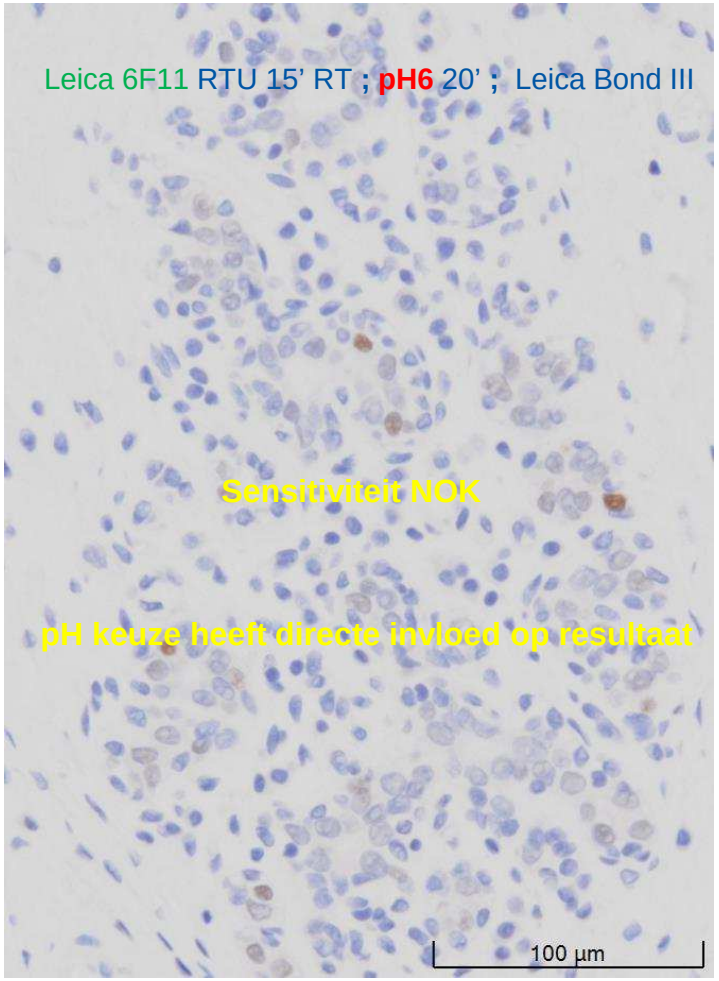


Core 4 = 1-10%



Antistof ER



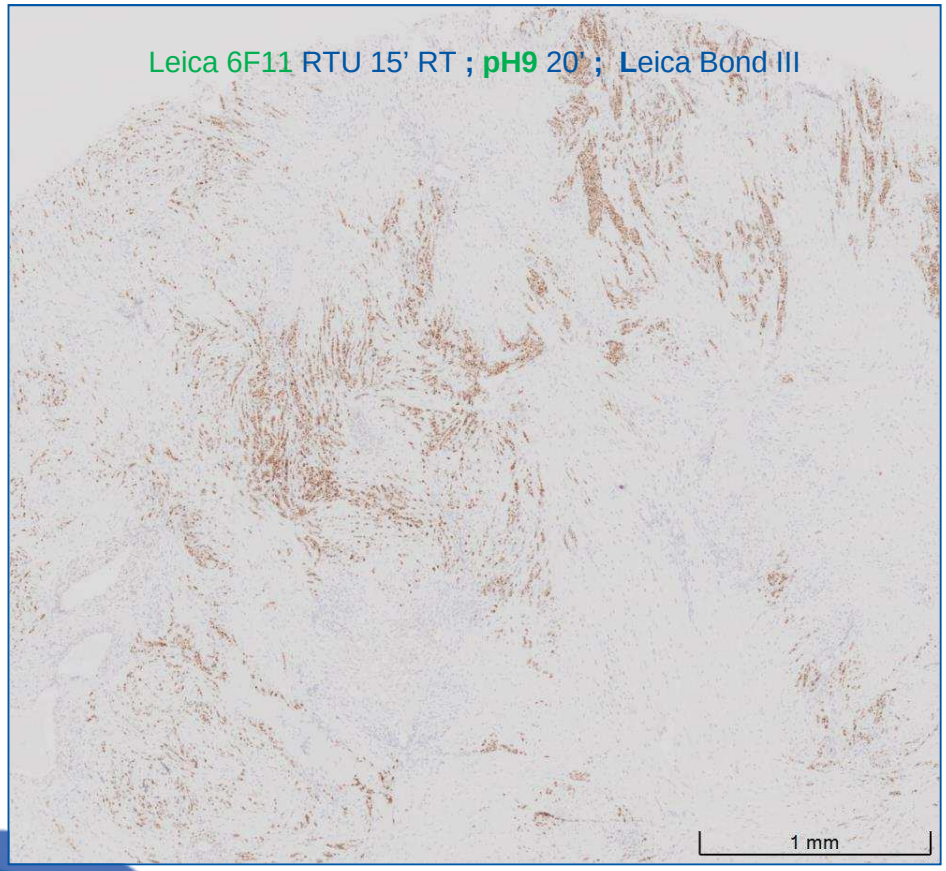


Optimaal

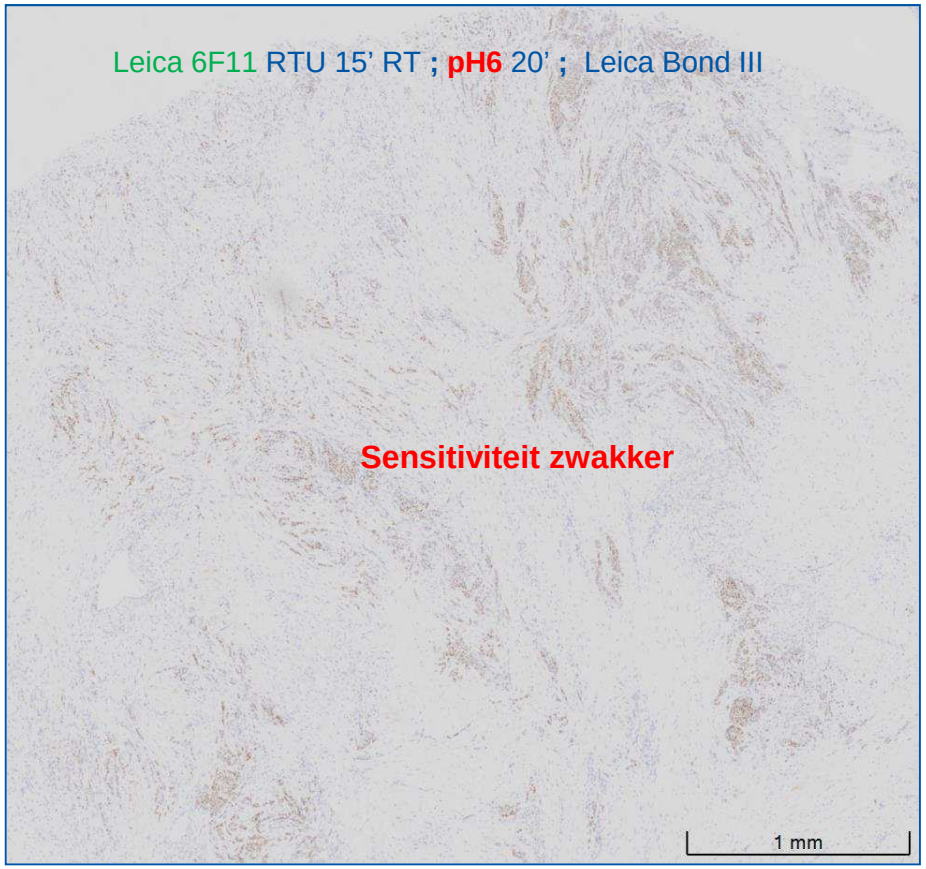
Core 4 = 1-10%

Borderline

Antistof ER



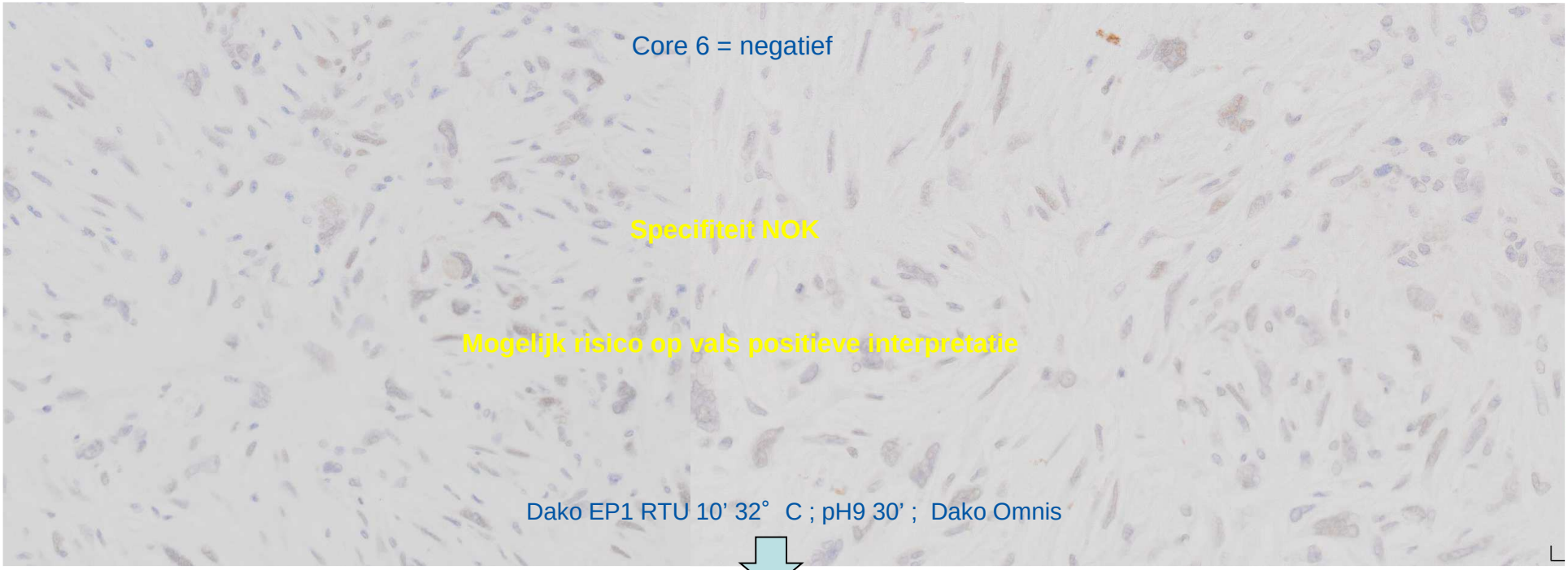
Optimaal



Borderline

Core 5 = 80-90% minstens matig pos.

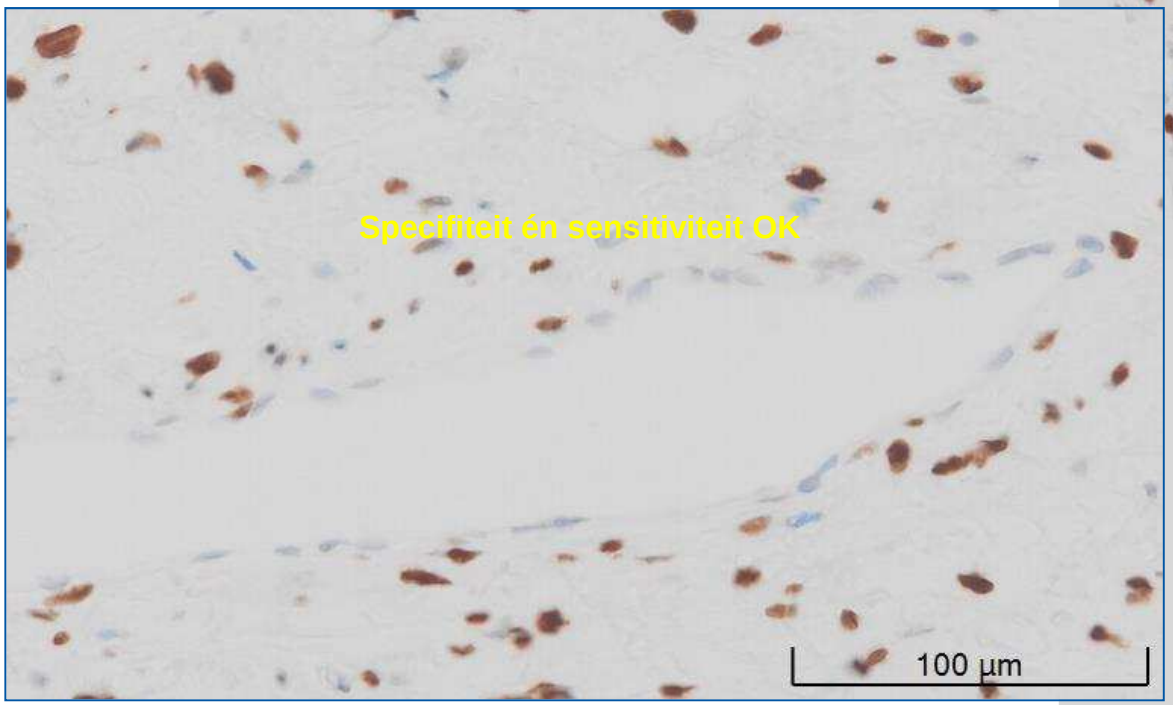
Antistof ER

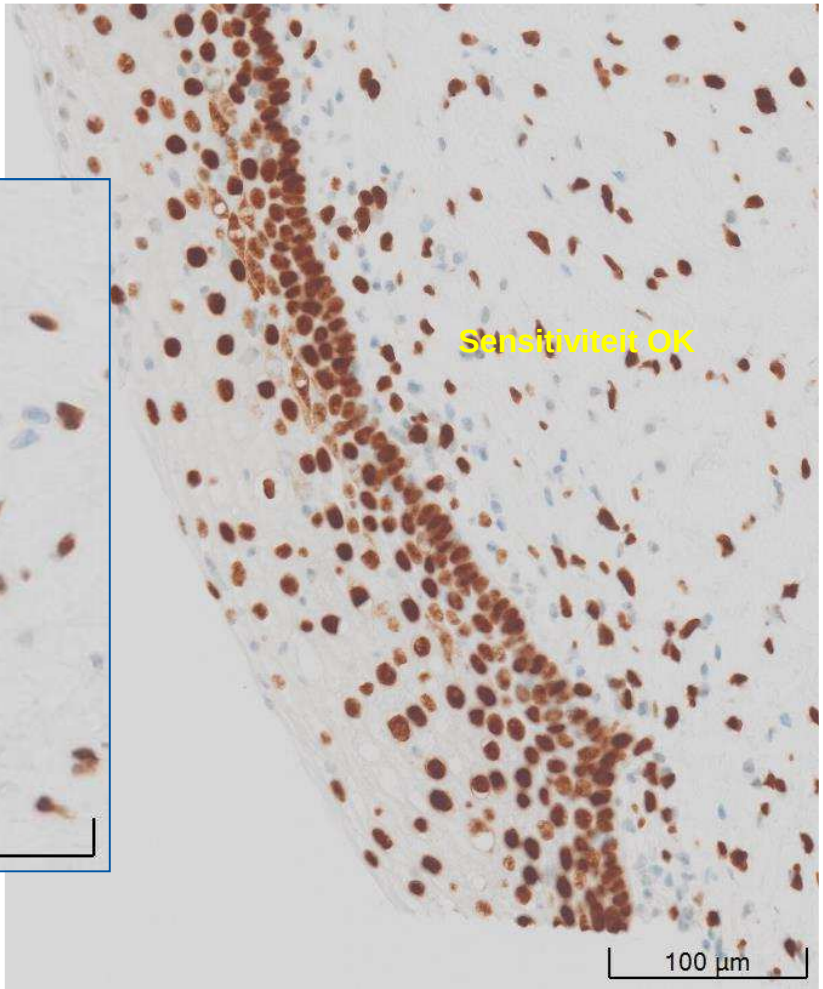


3 met gelijkaardig aankleuringspatroon

Onvoldoende

Antistof ER

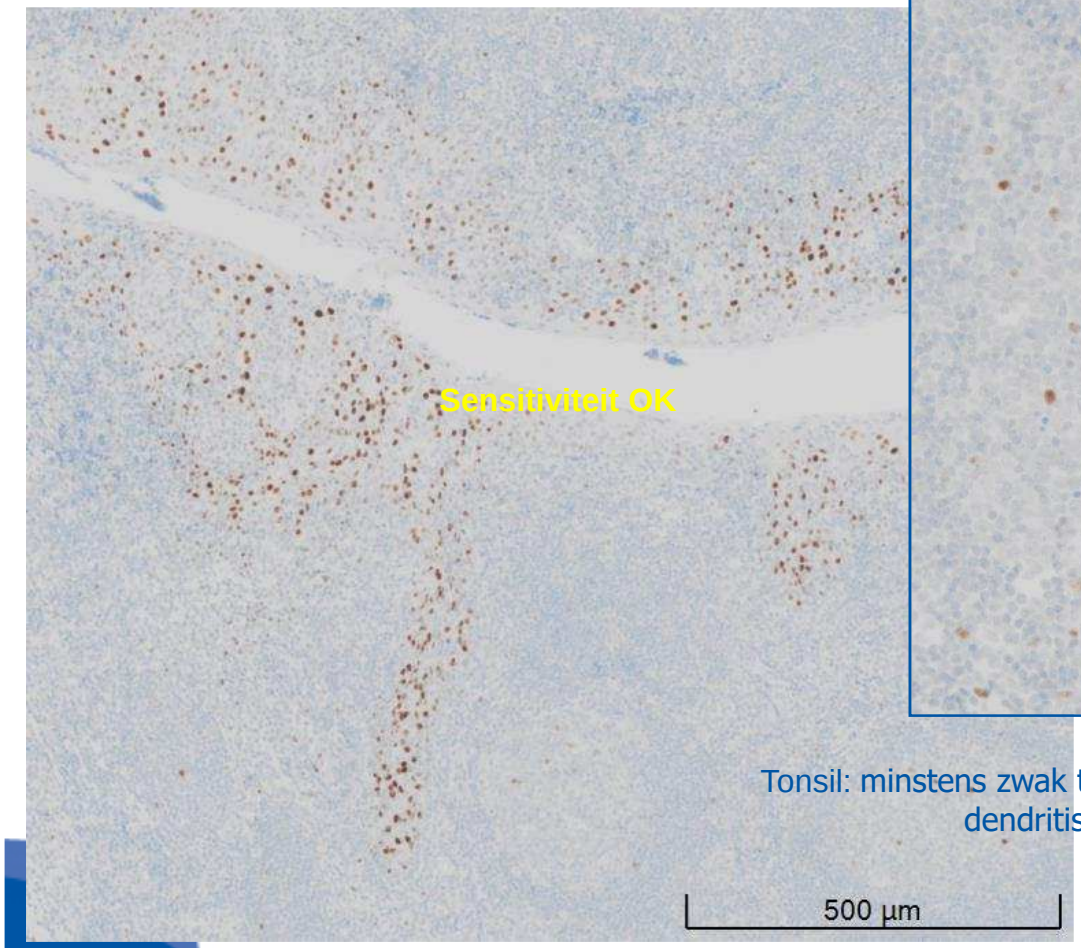


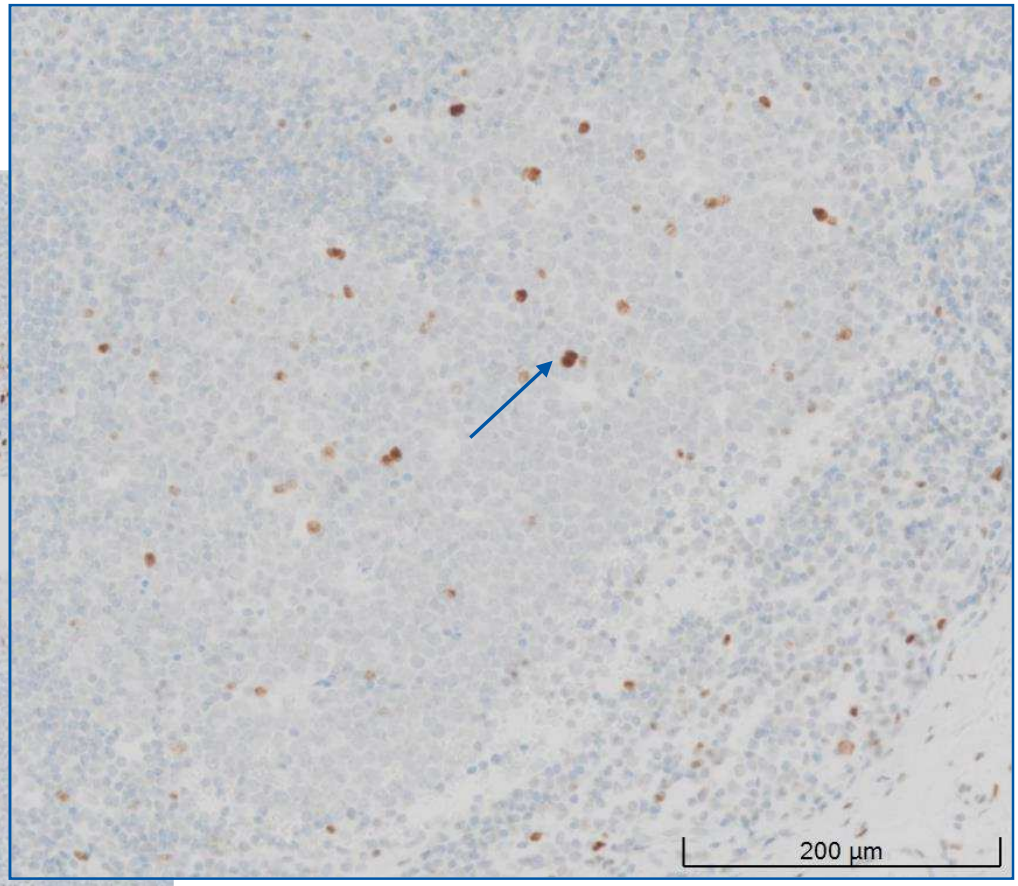


Optimaal

C.Marque SP1 1/50 32’ 36° C +amp ; CC1 64’ ; Ventana **OV**

Antistof ER





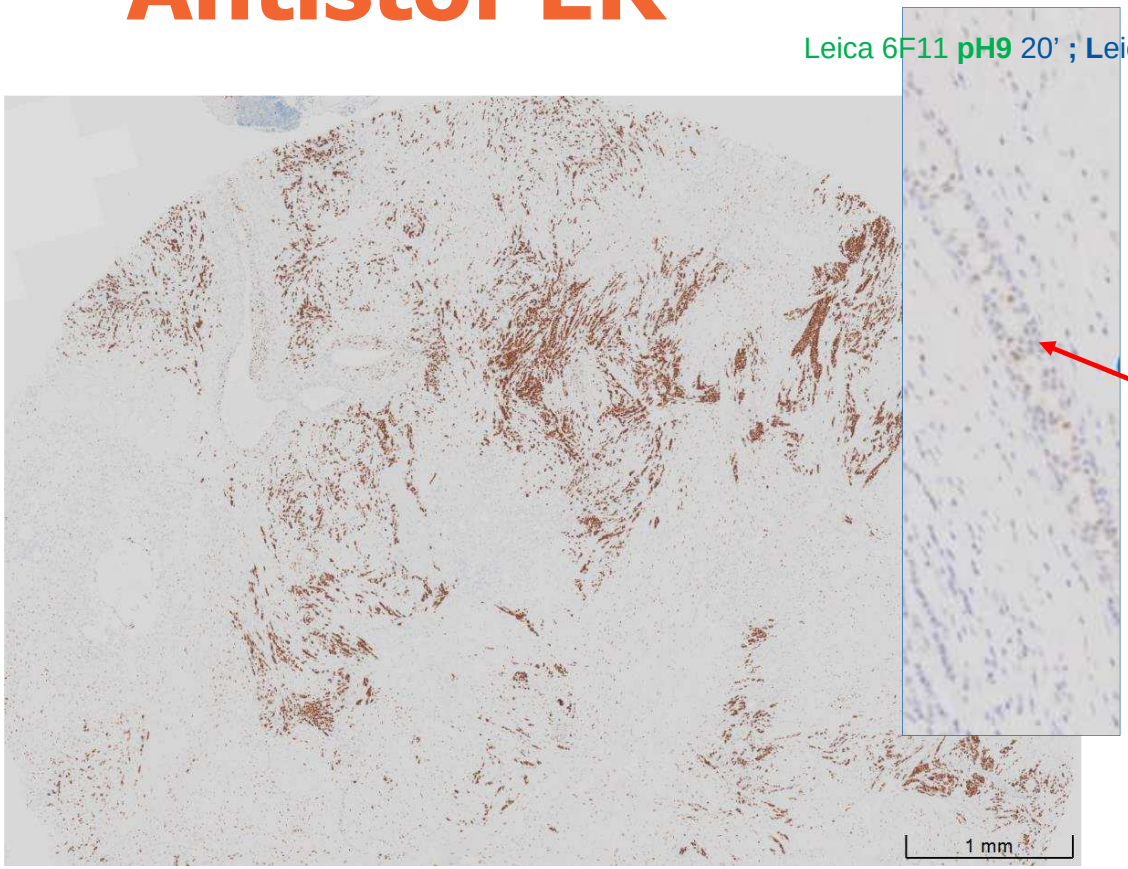
Tonsil: minstens zwak tot matige nucleaire aankleuring in verspreide folliculaire dendritische cellen/T-cellen en plaveiselcelepitheel

Optimaal

C.Marque SP1 1/50 32’ 36° C +amp ; CC1 64’ ; Ventana **OV**

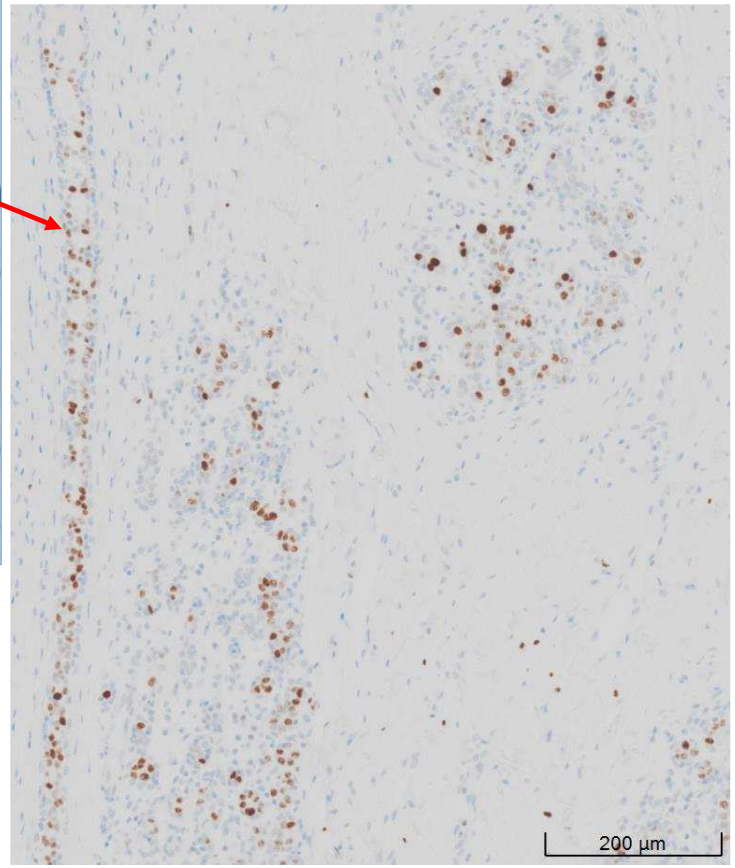
Antistof ER

Leica 6F11 **pH9** 20' **;** Leica Bond III



Core 5 = 80-90%

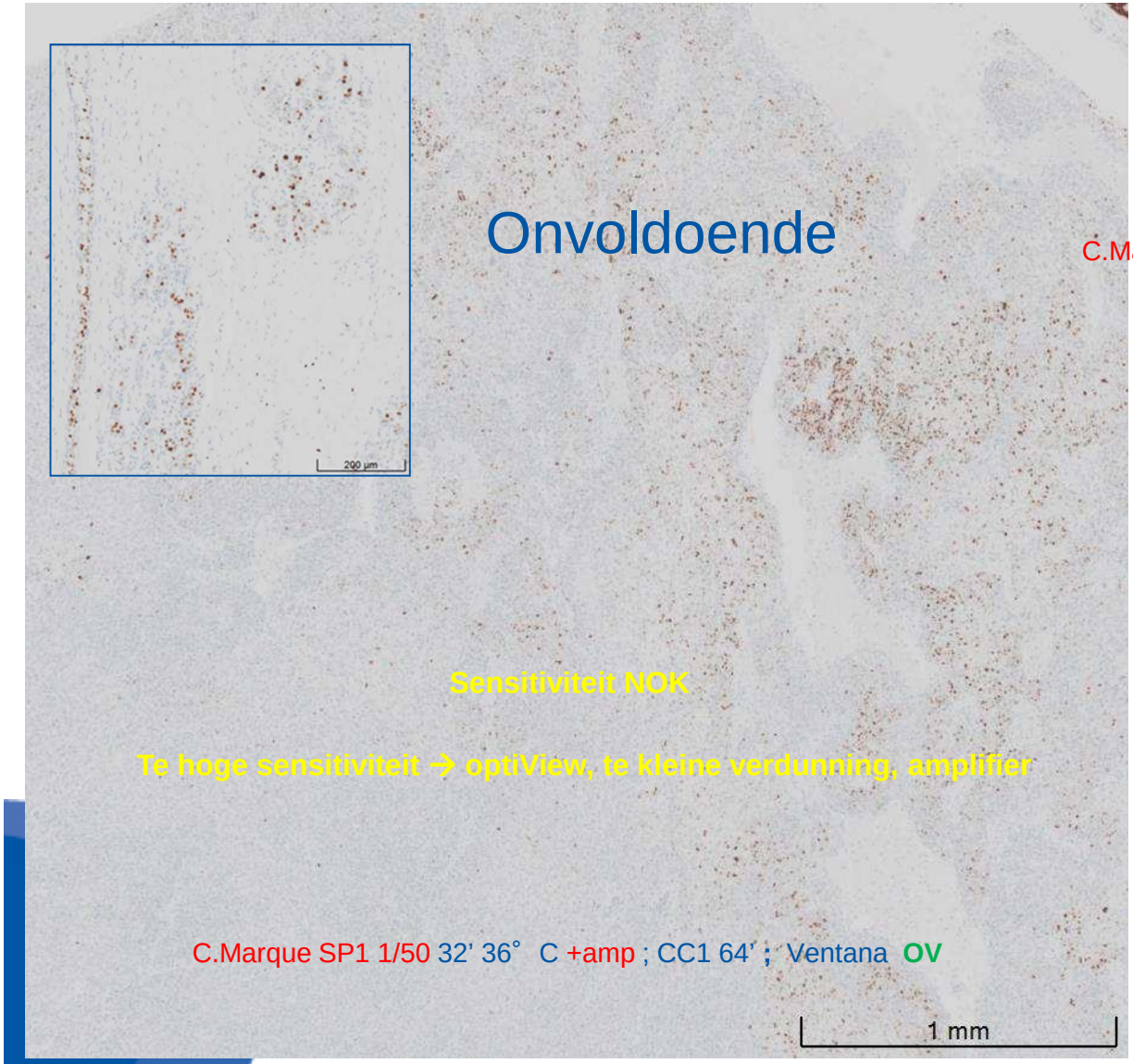
Core 4 = 1-10%



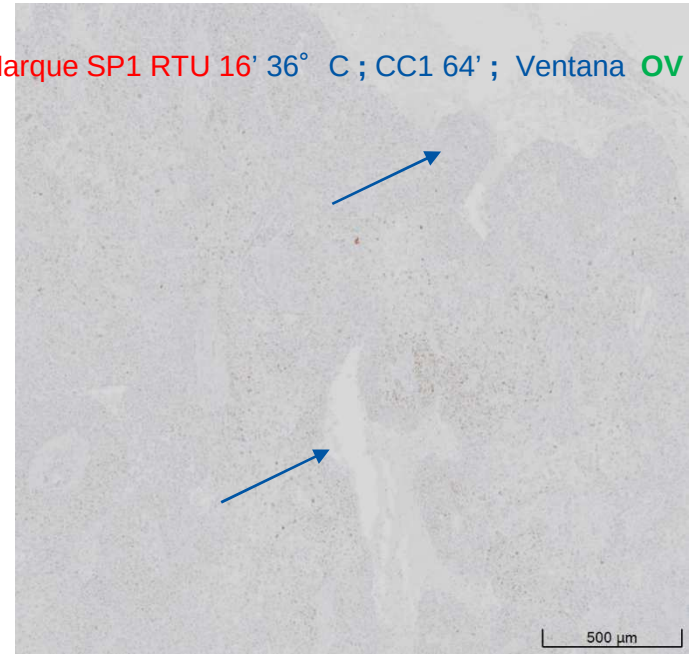
Optimaal ??

C.Marque SP1 1/50 32' 36° C +amp ; CC1 64' **;** Ventana **OV**

Antistof ER



Core 4 = 1-10%

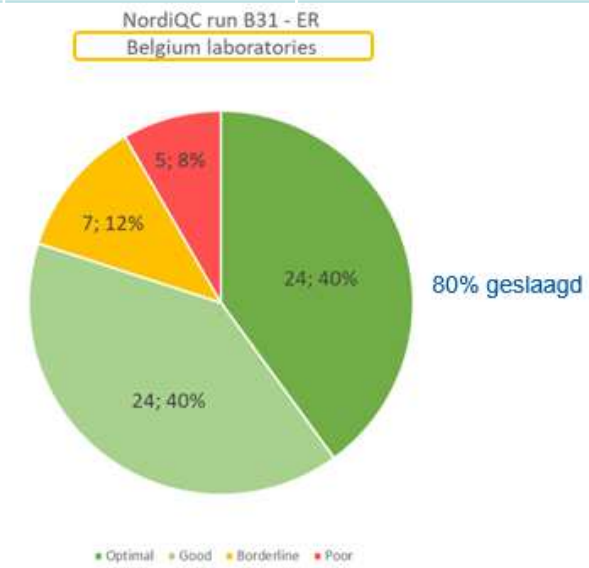


Optimaal

Resultaatbespreking ER

Algemeen

n=62		EKE2022-1		NQC 2022 B33	
	n	%	suff	%	suff
optimaal	**56**	90,3%	**94%**	*54%*	***89%***
goed	**2**	3,3%		*35%*	
borderline	**2**	3,3%		*8%*	
onvoldoende	**2**	3,3%		*3%*	



EKE2021 → NordiQC

Resultaatbespreking ER

Opgesplitst per clone : conc.

	SP1 C. Marque	***% suff***	***EP1 Dako***	***% suff***
	n=2		n=1	
optimaal	**0**	**-**	**1**	**-**
goed	**0**	**-**	**0**	**-**
borderline	1	-	0	-
onvoldoende	1	-	0	-
Totaal suff	***0/2***		***1/1***	
EKE2019-1	*0/1*		*0/1*	
EKE2020-1	*0/1*		*1/1*	
NQC 2022	*71% **		*87% ***	

* NordiQC: waarvan 67% optimaal
** NordiQC: waarvan 40% optimaal

Resultaatbespreking ER

Opgesplitst per clone: RTU

	EP1 Dako	*% suff*	SP1 Ventana/ C. Marque	*% suff*	*6F11 Leica*	*% suff*
	n=22		n=35		n=2	
optimaal	**19**	***86%***	**35**	***100%***	***1***	**-**
goed	**2**	***9%***	**0**	***0%***	***0***	**-**
borderline	0	0%	0	*0%*	*1*	-
onvoldoende	1	**5%**	0	*0%*	*0*	-
Totaal suff						*1/2*
EKE2019-1						*0/1*
EKE2020-1						*1/1*
NQC 2020 $						*%***

	EP1 Dako	*% suff*	SP1 Ventana/ C. Marque	*% suff*
	n=19		n=41	
optimaal	**1**	***5%***	**19**	***46%***
goed	**14**	***74%***	**15**	***37%***
borderline	0	0%	0	*0%*
onvoldoende	4	**21%**	7	***17%***

* Nordi
** Nord
*** No
$ NordiQC: LDT+VRPS

Resultaatbespreking ER

Besluit:

Suff. 94 %

- Algemene score beter dan alle voorgaande EKE en ~ NQC 2022
- Slechts 4 deelnemers niet geslaagd: 2 onvoldoende
- Suff. resultaat te behalen bij alle gebruikte clones/stainers
  - SP1 en EP1 clones: beiden hoog slaagpercentage (>97%)
  - Ventana SP1 100% optimaal resultaat (vs vorige EKE)
- AS:
  - Slechts 5% (n=3) conc. AS, geen Leica conc. meer
  - 37% Dako clone EP1 , 60% Ventana/C.Marque clone SP1
  - Dako platformen:
    - Omnis: sterk gestandaardiseerd, 95% geslaagd, 84% optimaal resultaat, 1/11 onvoldoende (vals pos.) gelijke protocolsettings
    - Autostainer: meer spreiding in protocols (AS) → geen impact op resultaat: allen optimaal
  - Ventana platformen:
    - 56% gebruikt datasheet HIER (60') vs 40% EKE2020 vs 12% EKE2019
    - 21% gebruikt datasheet AS tijd (16')
    - Slechts 3 deelnemers gebruiken 3 stap optiView detectie (datasheet = ultraView) → 2/3 is conc. AS +- amplifier
- Extra controlecoupe: 69% (EKE2020: 66% ; EKE2019: 55%)

Resultaatbespreking ER

Besluit:

Suff. 94%

- Leica 6F11 RTU:
  - HIER pH6 (BERS1) = datasheet setting
  - 2019-1 : 1 deelnemer: onvoldoende o.w.v. HIER pH6 → 2020-1 HIER pH9 = geslaagd
  - Update EKE 2022: pH6 = borderline (vals negatief) vs pH9 optimaal

NordiQC 2019:
'The Leica RTU system PA009/PA0151 (6F11) for BOND gave an overall pass rate of 62%.
Optimal results were only obtained by laboratory modified protocol settings using HIER in BERS2 (pH9) for 20 min. as opposed to performing HIER in BERS1 (pH6) for 20 min. as recommended by Leica. '

NordiQC 2022:

The Leica RTU system PA0009/PA0151 for BOND based on mAb 6F11, was used by 3% of the laboratories and gave an overall pass rate of 62%. In this assessment, VRPS based on HIER in BERS1 (low pH) for 20 min., 15 min. incubation of the primary Ab and Bond Refine as detection system was used by three participants, with only one participant achieving sufficient results. Laboratories using a protocol modification increasing analytical sensitivity by using HIER in BERS2 (high pH) obtained a pass rate of 86% (6 of 7), 57% optimal (4 of 7). However high pH retrieval should be used with caution with this clone due to the concerning number of false positive staining reactions noted by this modification in run B28. Protocol modifications increasing incubation time of the primary antibody alone did not yield any optimal results and resulted in weak staining in 1 of 2 laboratories employing this method.

Top in Zorg.

Resultaatbespreking ER

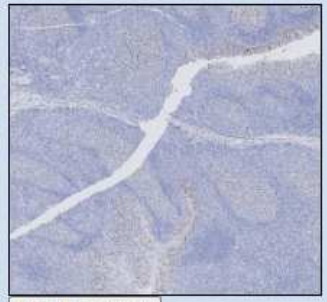
Besluit:

- Aanbevolen controle: NordiQC

Recommended controls

ER - Estrogen Receptor

cellen)

Control type	Positive tissue control High expression level	Positive tissue control Low expression levels	Negative tissue control
Tissue	Cervix	Tonsil	Tonsil
Description	Virtually all squamous epithelial cells, columnar epithelial cells and stromal cells (except lymphocytes and endothelial cells) must show a moderate to strong nuclear staining reaction.	The vast majority of squamous epithelial cells and dispersed follicular dendritic cells / T-cells within the germinal centers must show an at least weak, distinct nuclear staining reaction.	No staining reaction in mantle zone and germinal center B-cells should be seen.
Example	Click to enlarge	Click to enlarge	 Click to enlarge

CD30	Tonsil	See controls
CD31	Appendix/colon, Liver, Tonsil	See controls

NIEUW NORDIQC

Resultaatbespreking besluit

geslaagd		2022-1	2020-3	2020-1	2019	NQC globaal	
PR		-	87% (93,5%*)	-	92%*	91%	2022
HER2	✓	100%	98%	96,5%	86%	84%	2022
ER	✓	94%	-	81 % (88%*)	84 %	89%	2022

* Na reassessment

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