Weefselonderzoek bij longkanker

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Klinisch patholoog Meander MC
4 november 2023

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- wat doet een patholoog?
- weefsel soorten
- achter de schermen op het laboratorium
- hoe ontstaat kanker?
- verschillende soorten longkanker
- immuunhistochemie / PD-L1
- moleculair biologisch onderzoek
- verslaglegging / pathologie rapport

Inhoud

Hoe is de patholoog betrokken in het diagnostisch proces van longkanker

Pathologie is de studie *(logos)* van ziekten *(pathos)*

- beoordelen van losse cellen (cytologie) en weefsel (histologie)
- onderzoek naar de doodsoorzaak (obductie/autopsie)
- aanwezigheid bij multidisciplinaire overleg (MDO)

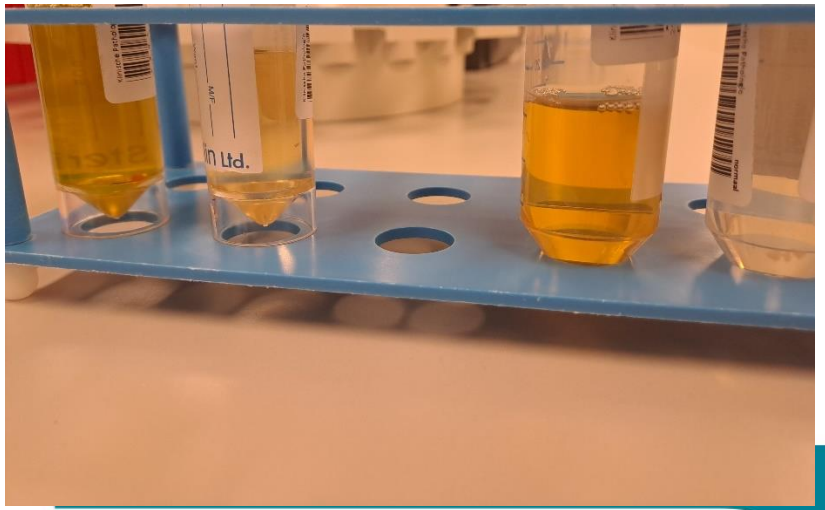
Wat doet een patholoog?

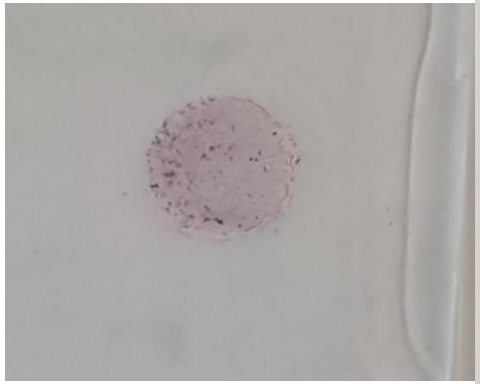
Weefselonderzoek bij longkanker

Cytologie: beoordelen van losse cellen

long spoelvocht
vocht achter de longen
cellen uit een lymfklier

urine
baarmoederhalsuitstrijkje





cellen uit de luchtpijp

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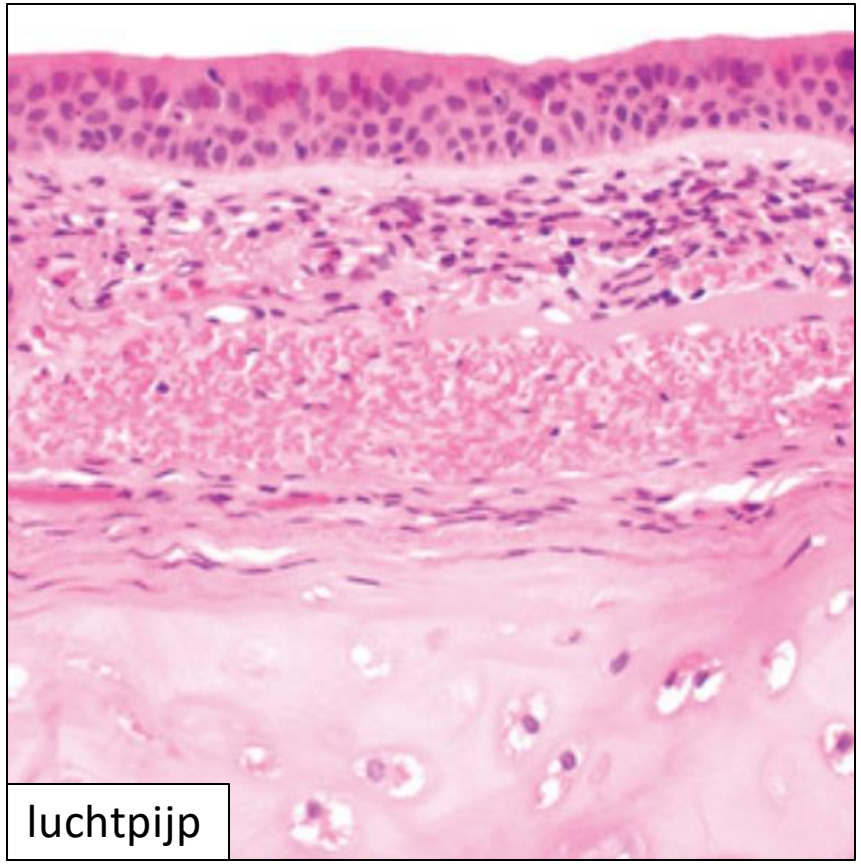
Histologie: beoordelen van weefsel

(naald)biopt uit een afwijking die op een scan is gezien
weefsel verwijderd bij operatie

kleine ingrepen bij de huisarts/huidarts

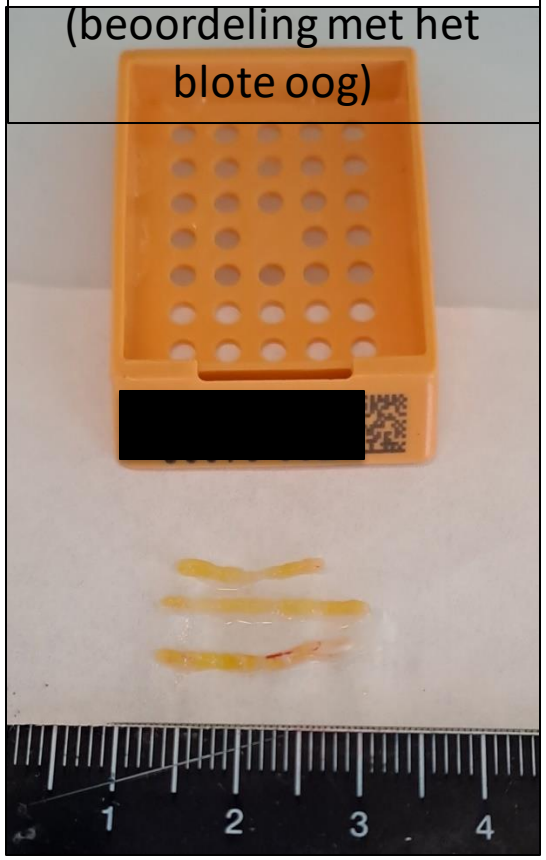
biopten verkregen uit de maag of darmen

knobbel in de borst

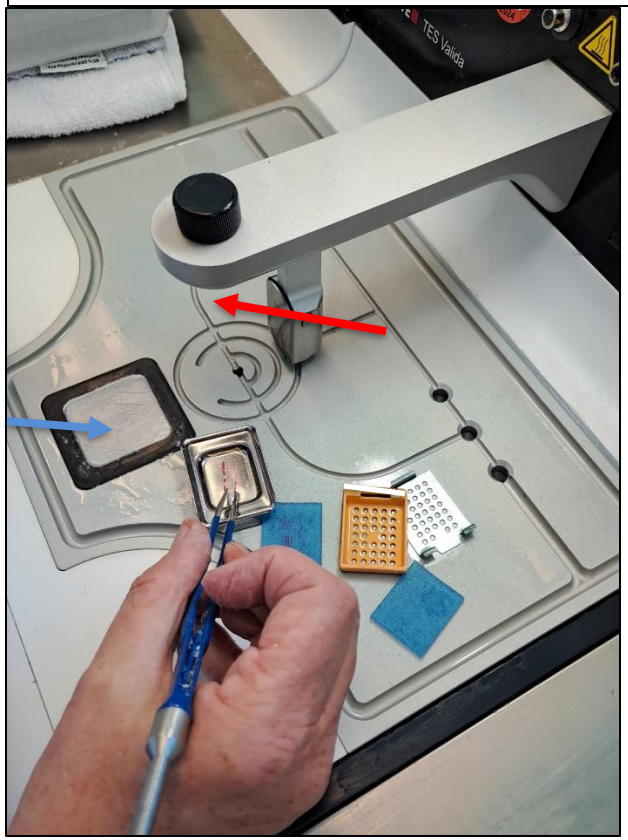


Stap 1
- Afname van weefsel
> Transport afdeling pathologie

macroscopie (beoordeling met het blote oog)



Verwerking op het laboratorium



Verwerking van het materiaal

Achter de schermen in het pathologie laboratorium (deel 1)

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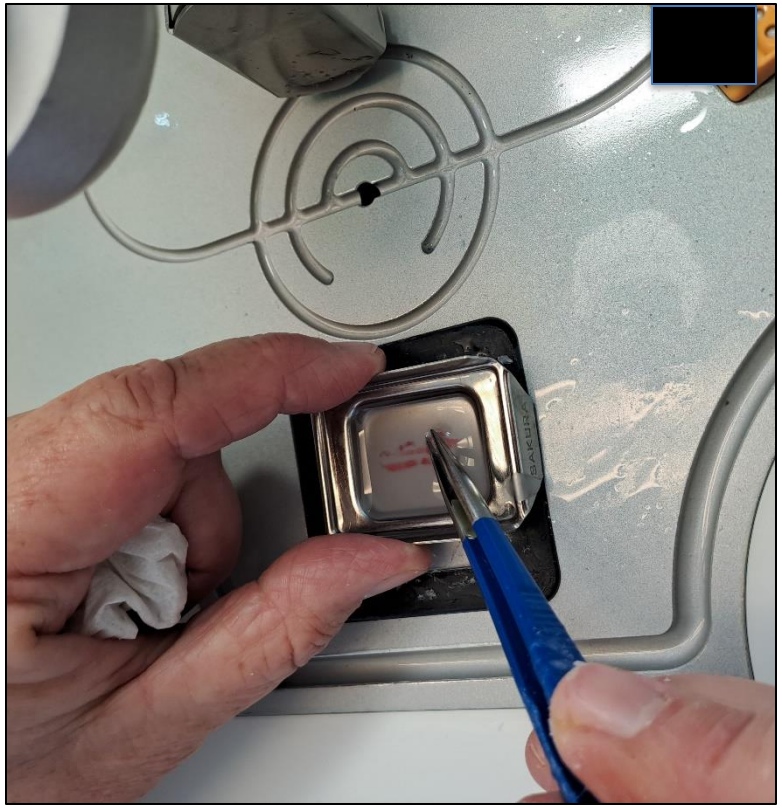
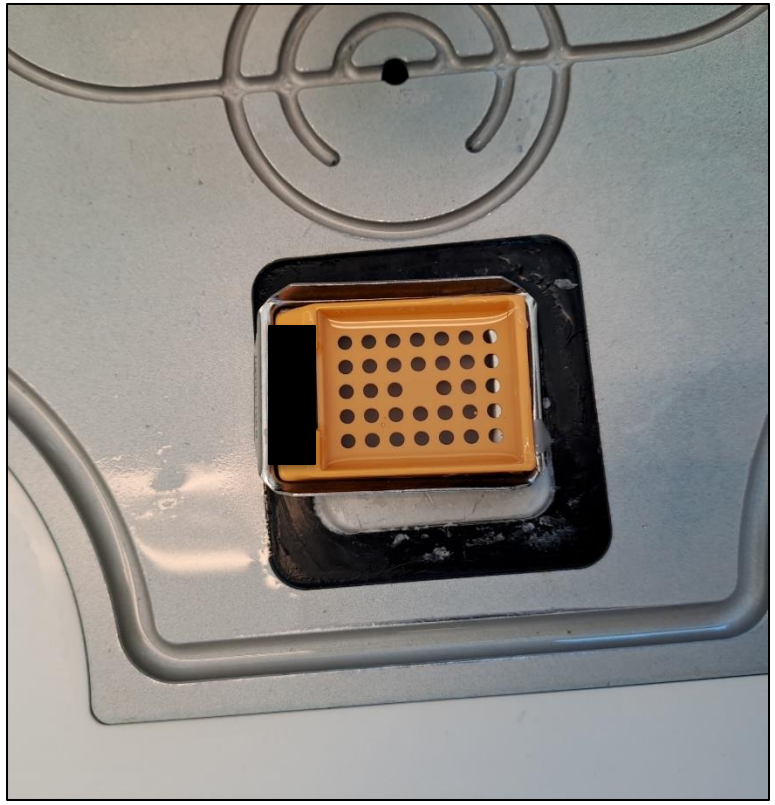
stz ziekenhuizen

Verwerking op het laboratorium
(inbedden)





Achter de schermen in het pathologie laboratorium (deel 2)

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Verwerking op het laboratorium
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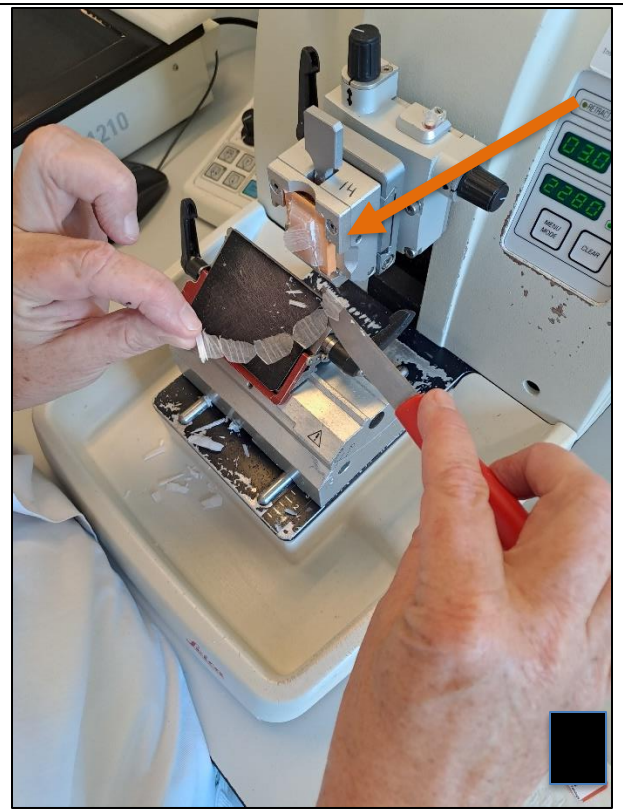

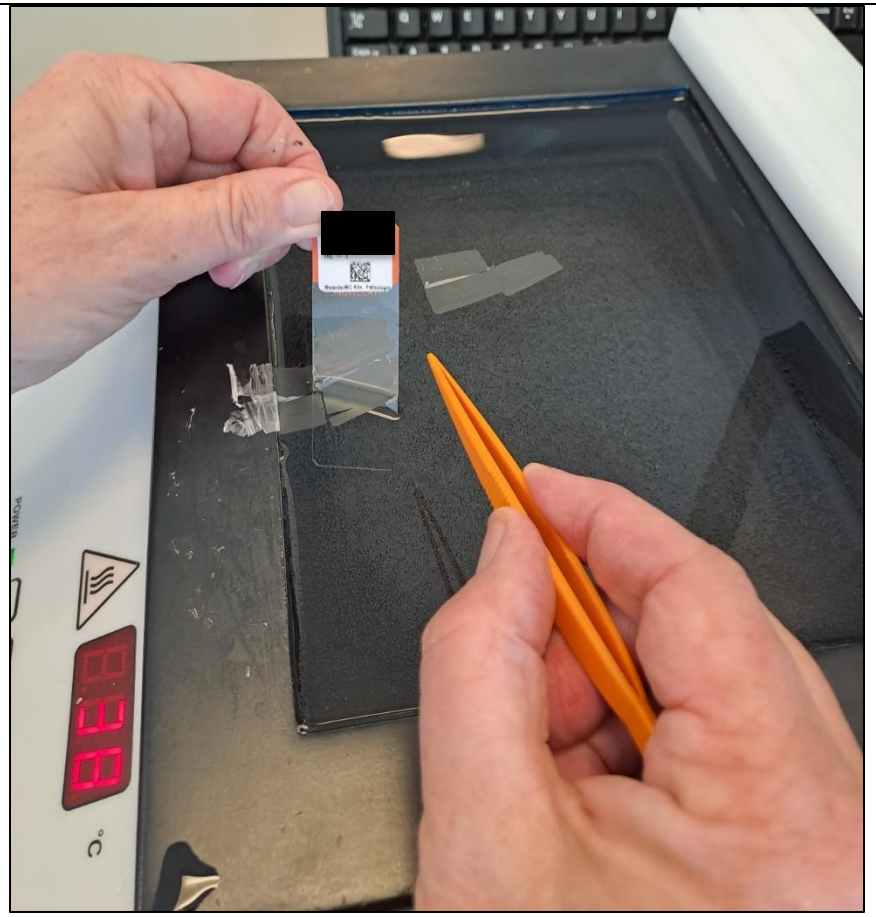

Achter de schermen in het pathologie laboratorium (deel 3)

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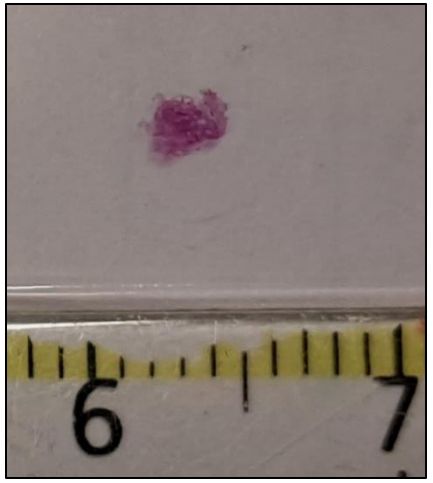
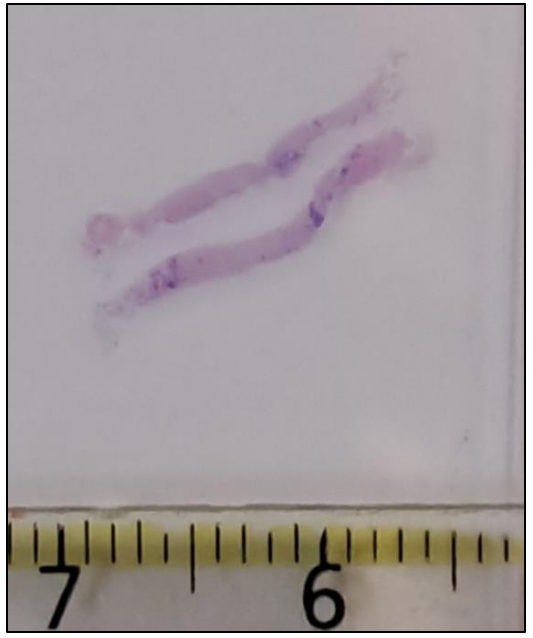
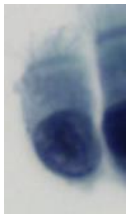
stz ziekenhuisgroep

Verwerking op het laboratorium (kleurmachine)





Achter de schermen in het pathologie laboratorium (deel 4)



= 1 cel

Hand-leiding

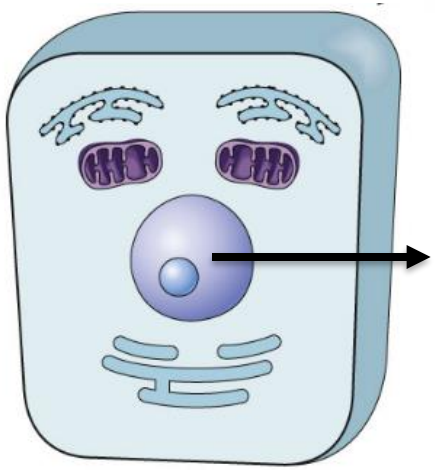
Hant-leiding

Hant-leidig

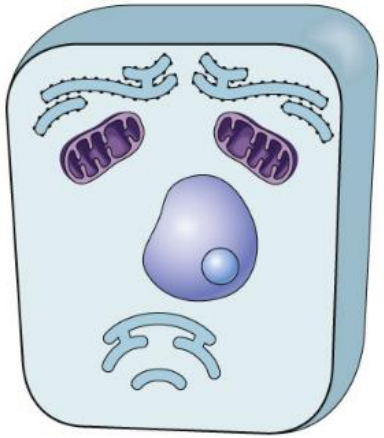
Hant-liidig

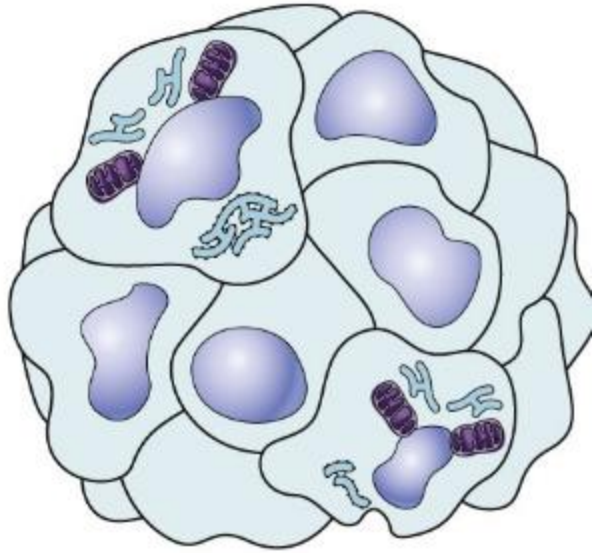
Hont-liidig

Vont-liidig



DNA





Hoe ontstaat kanker?

Veel cellen bij elkaar worden zichtbaar op de scan

Ongeremde celdeling en groei

Robbins & Cotran Pathologic basis of disease, 10th edition

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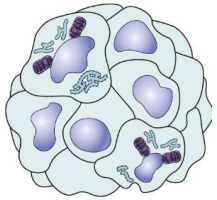
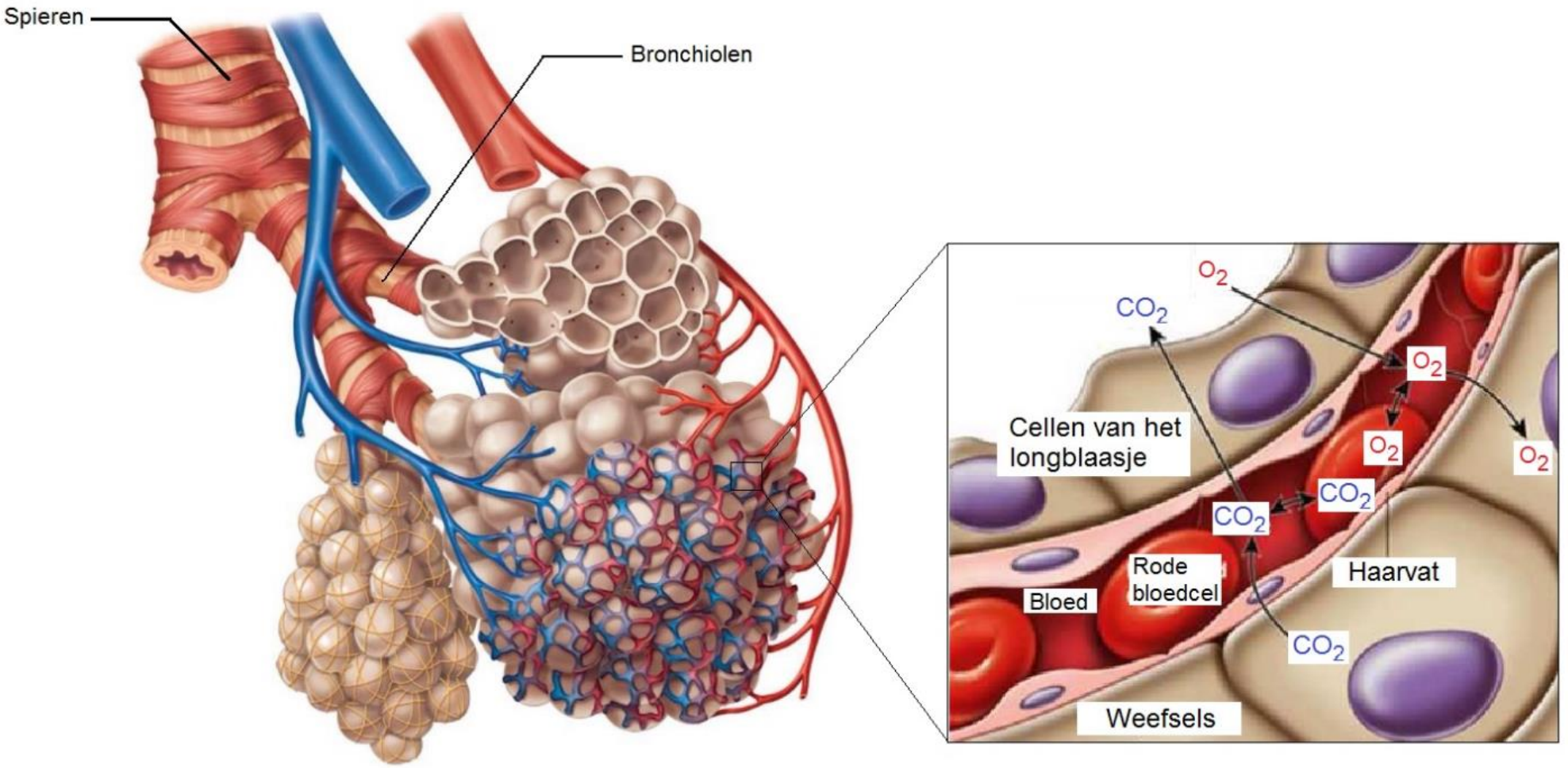
Kenmerken van kanker:



- Ongeremde celdeling en groei (toename van verkeerde cellen)
- Verstoring van de normale opbouw van het weefsel
- Mogelijkheid tot het verspreiden via bloedbaan of lymfebaan (uitzaaiing)

Diagnose longkanker

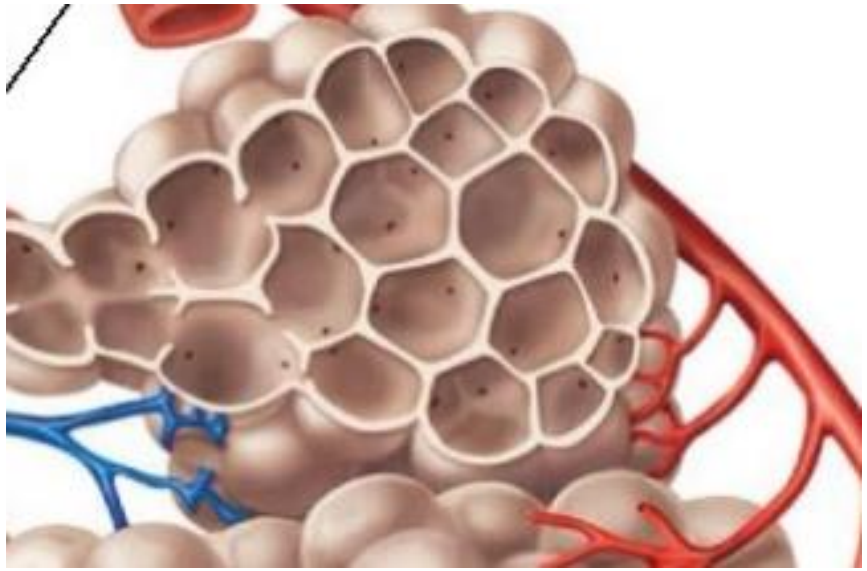
Hoe ziet (long)kanker er uit onder de microscoop?



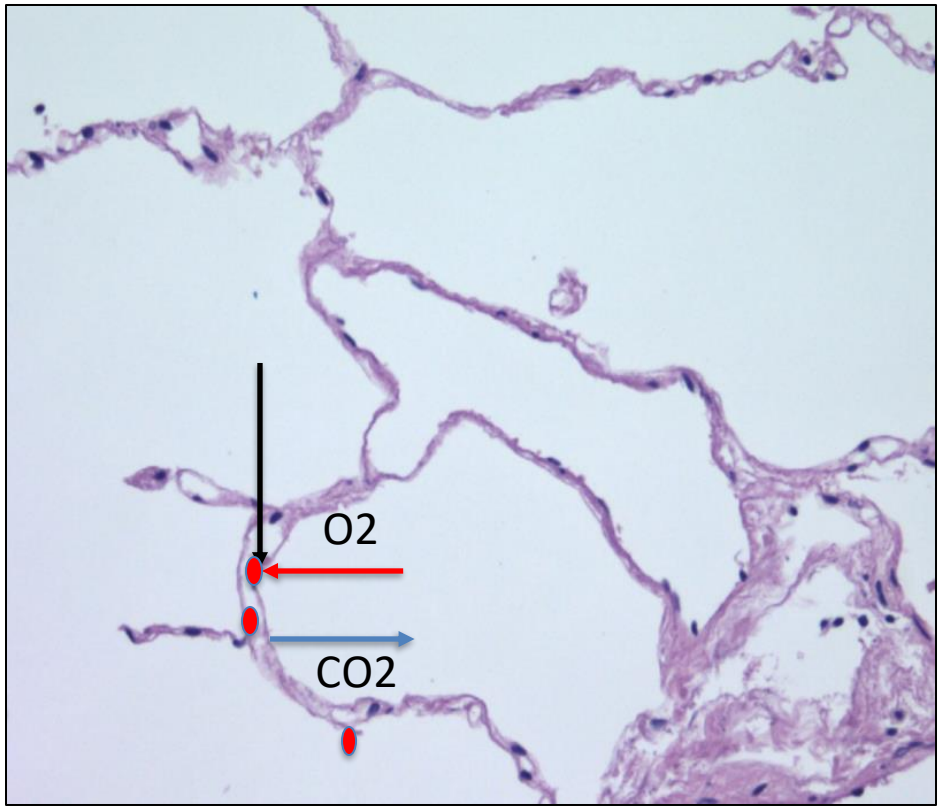
Gaswisseling in de longen en in de weefsels

Longweefsel illustratie

Illustratie longblaasje

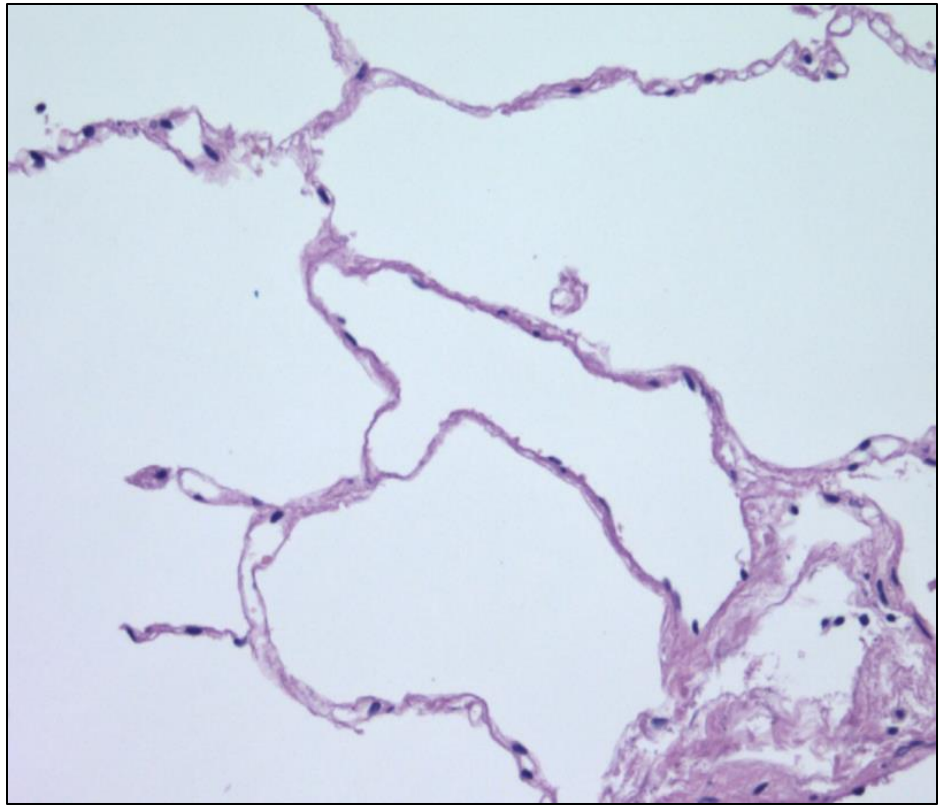


Longblaasje onder de microscoop



1 millimeter

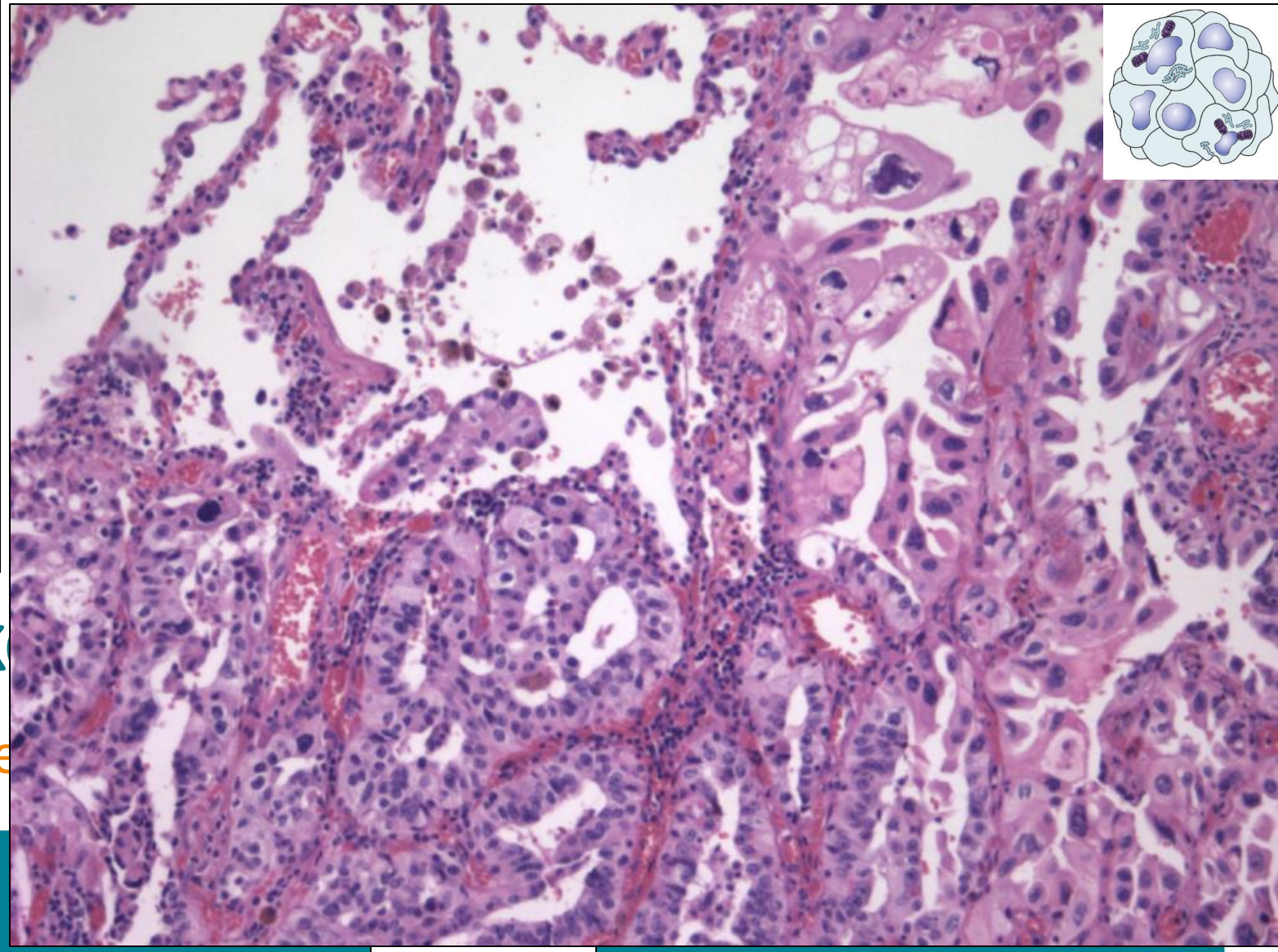
Longweefsel onder de microscoop



Diagnose longkank

Hoe ziet kanker er uit onder de

Longkanker



1 millimeter

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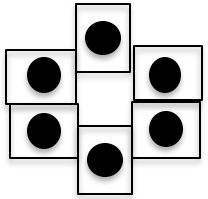
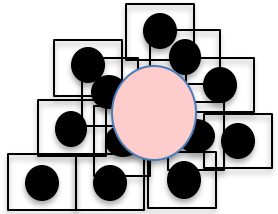
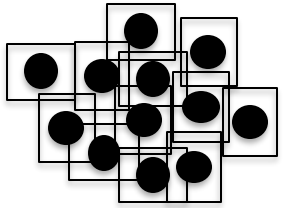
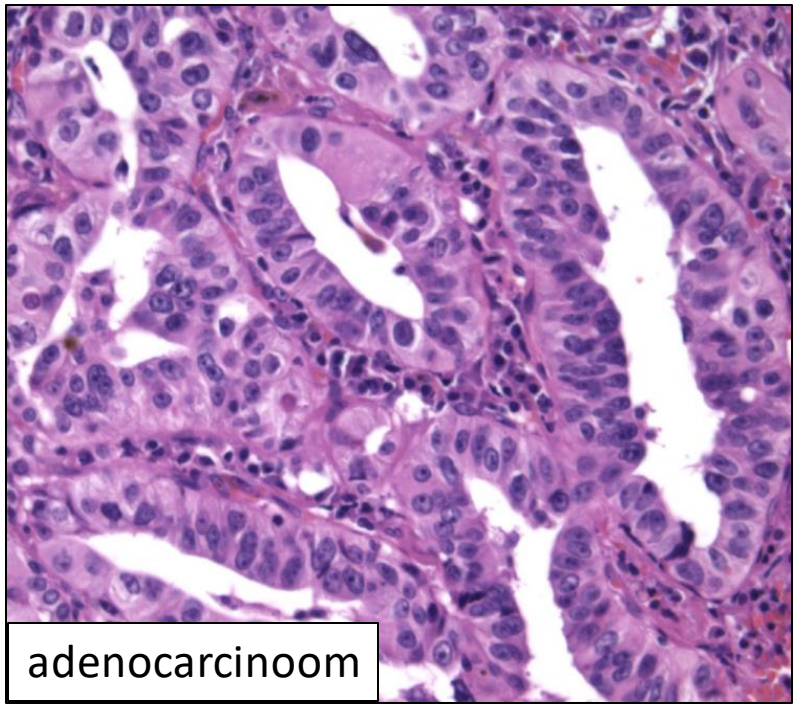


= 1 tumorcel

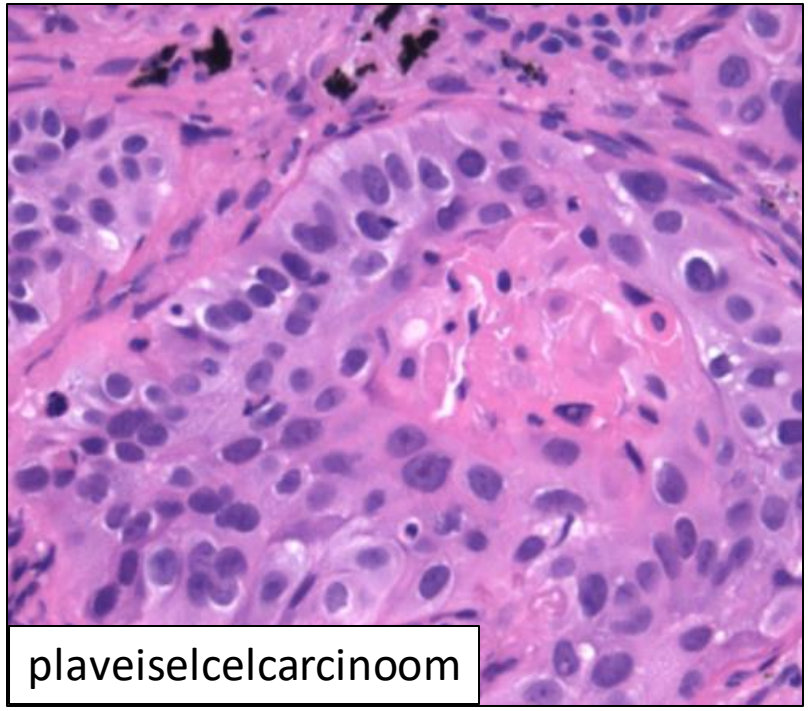




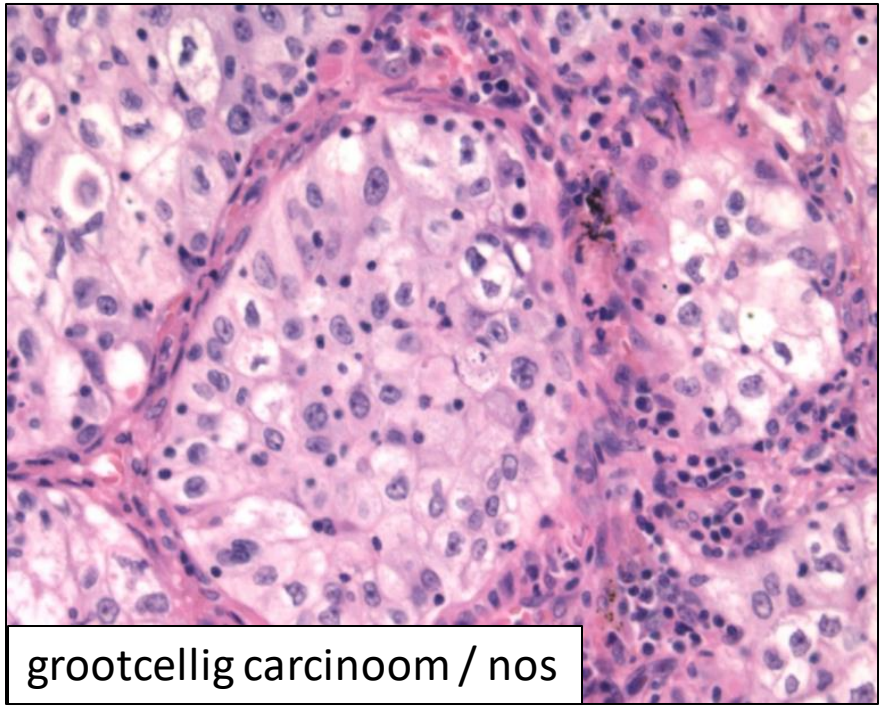
niet-kleincellig longkanker (NSCLC)



adenocarcinoom



plaveiselcelcarcinoom



grootcellig carcinoom / nos

Hoe zien verschillende soorten longkanker er uit en waarom is het belangrijk deze te onderscheiden?

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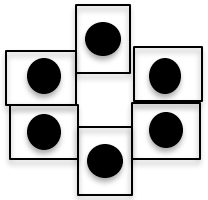
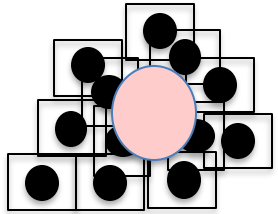
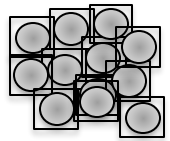
1 millimeter



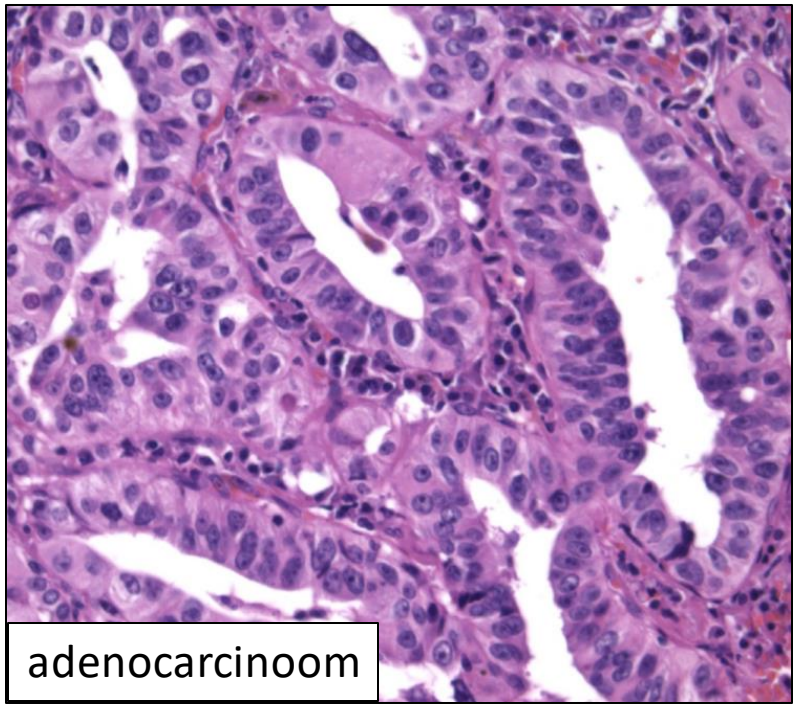
= 1 tumorcel



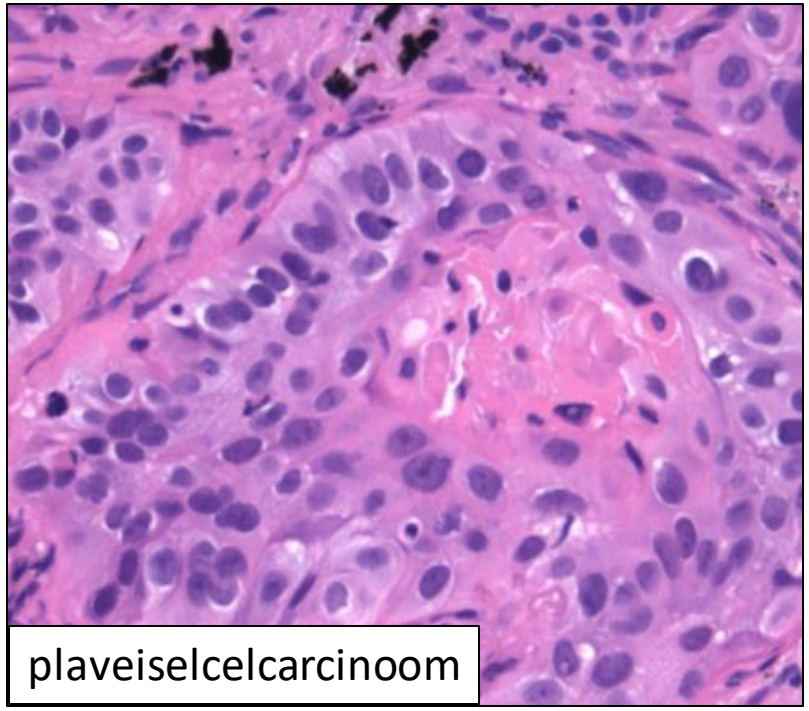


niet-kleincellig longkanker (NSCLC)

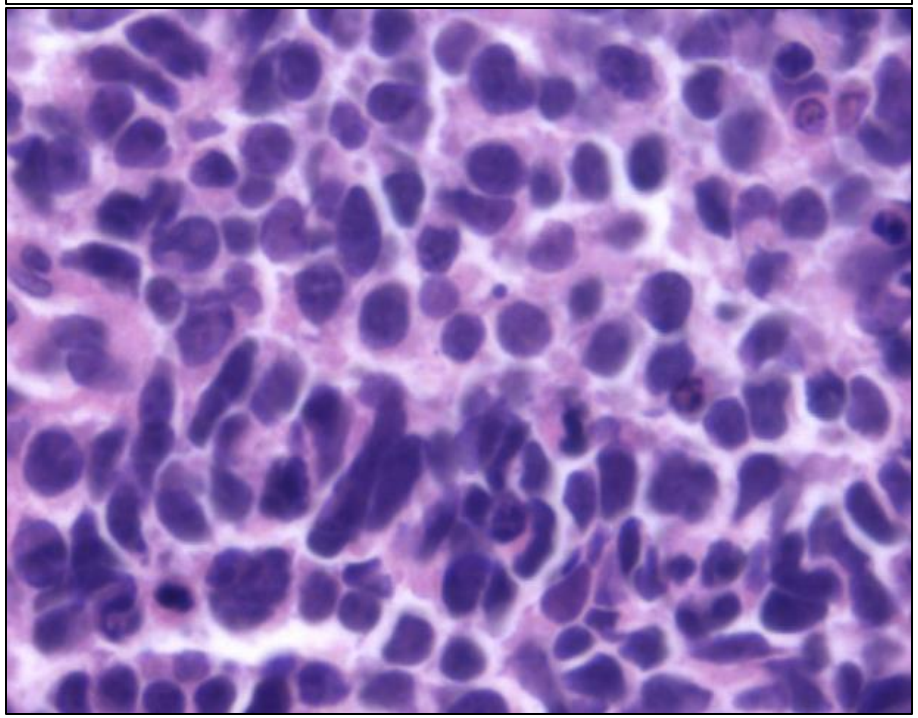
kleincellig longkanker (SCLC)



adenocarcinoom

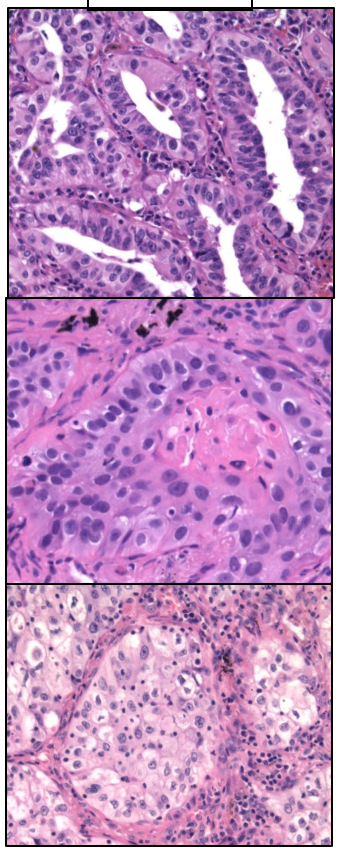


plaveiselcelcarcinoom



Hoe zien verschillende soorten longkanker er uit en waarom is het belangrijk deze te onderscheiden?

NSCLC



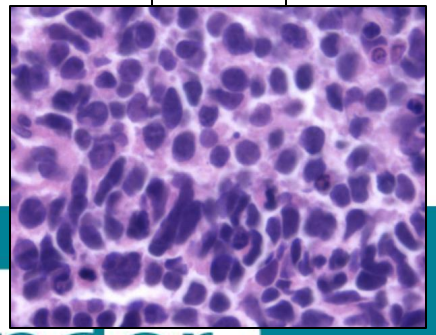
- Niet-kleincellige longkanker
  - PD-L1: ..... %
- Kleincellige longkanker

- Adenocarcinoom
- Plaveiselcelcarcinoom
- Grootcellig (ongedifferentieerd) carcinoom

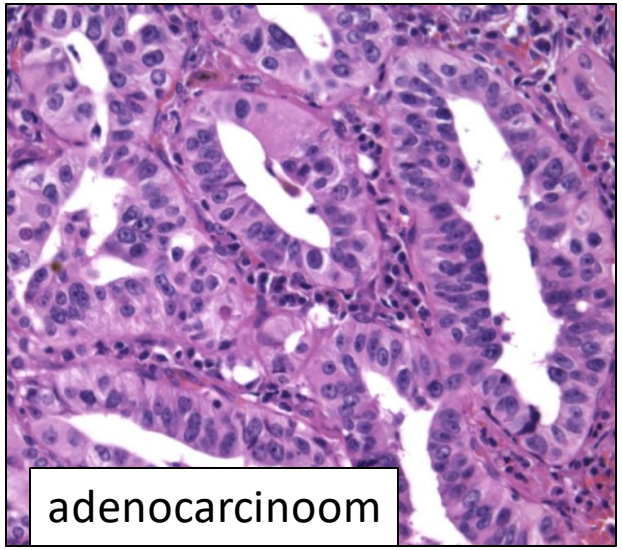
Moleculaire diagnostiek

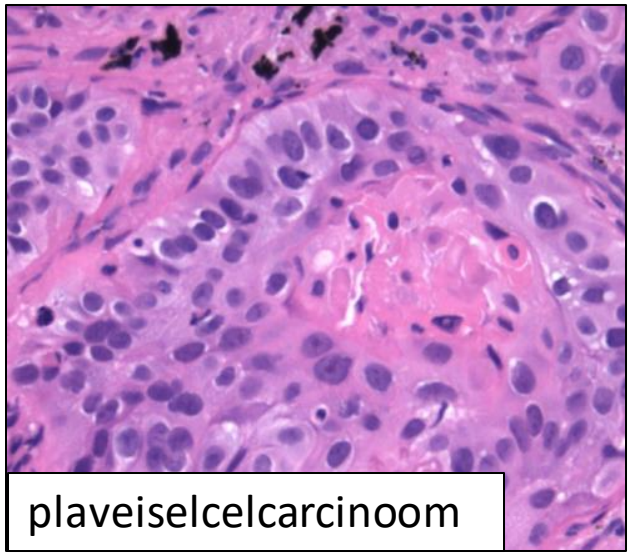
- ALK
- BRAF
- EGFR
- HER2
- KRAS
- MET
- NRG1
- NTRK
- RET
- ROS1
- Anders: .....

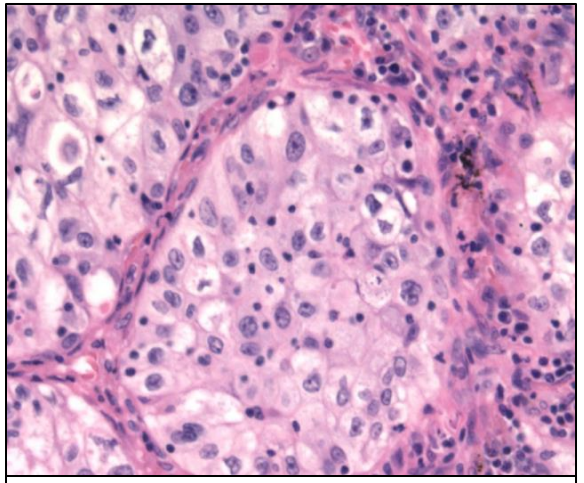
SCLC

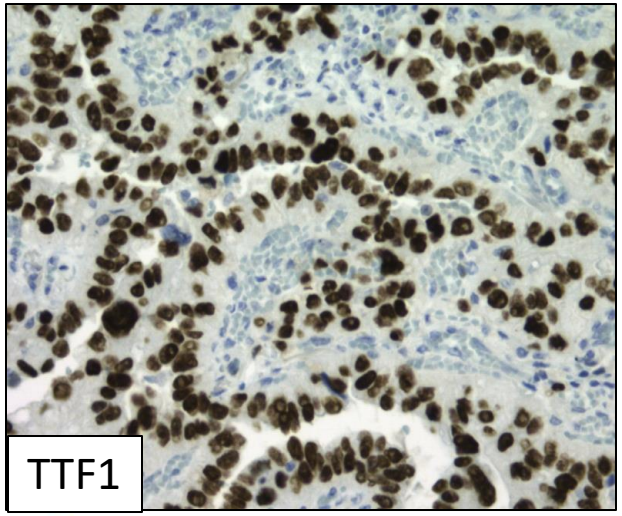


niet-kleincellig carcinoom (NSCLC)


adenocarcinoom


plaveiselcelcarcinoom


grootcellig carcinoom / nos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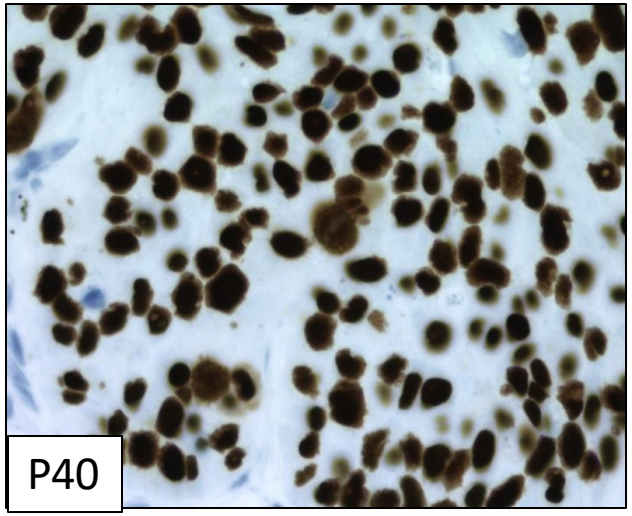
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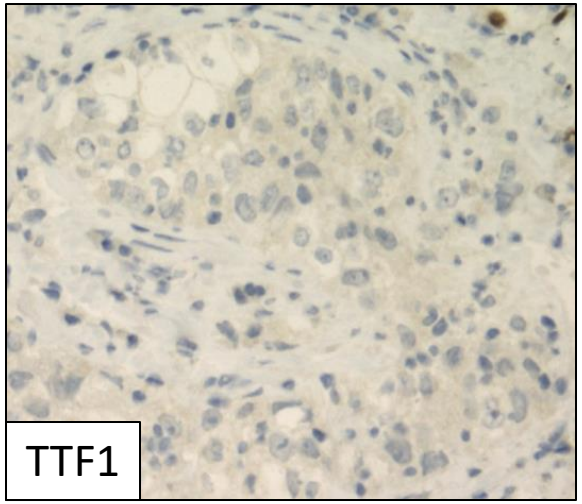
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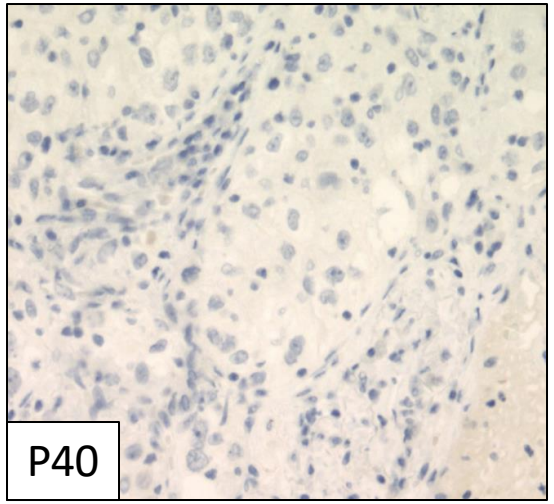
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Immuunhistochemie: subtypering

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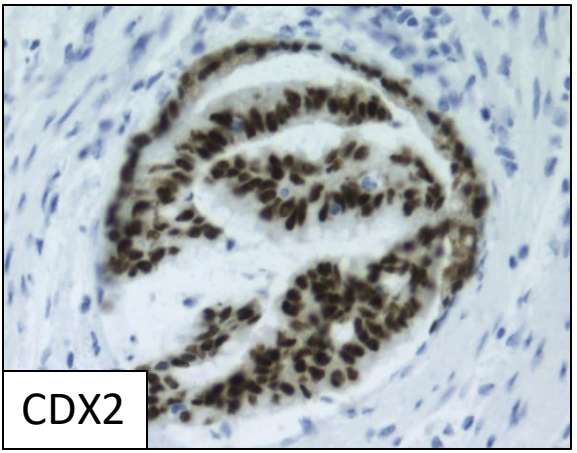
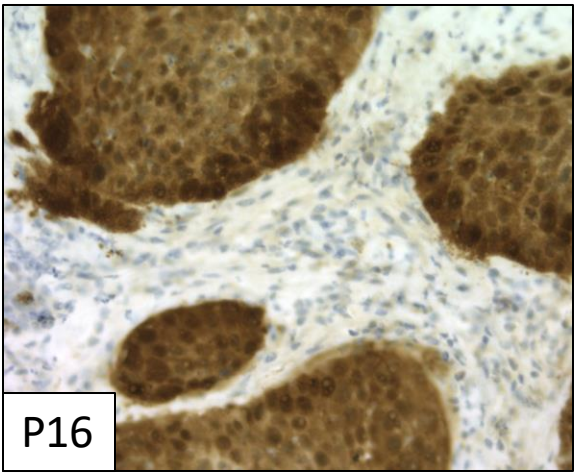


CDX2



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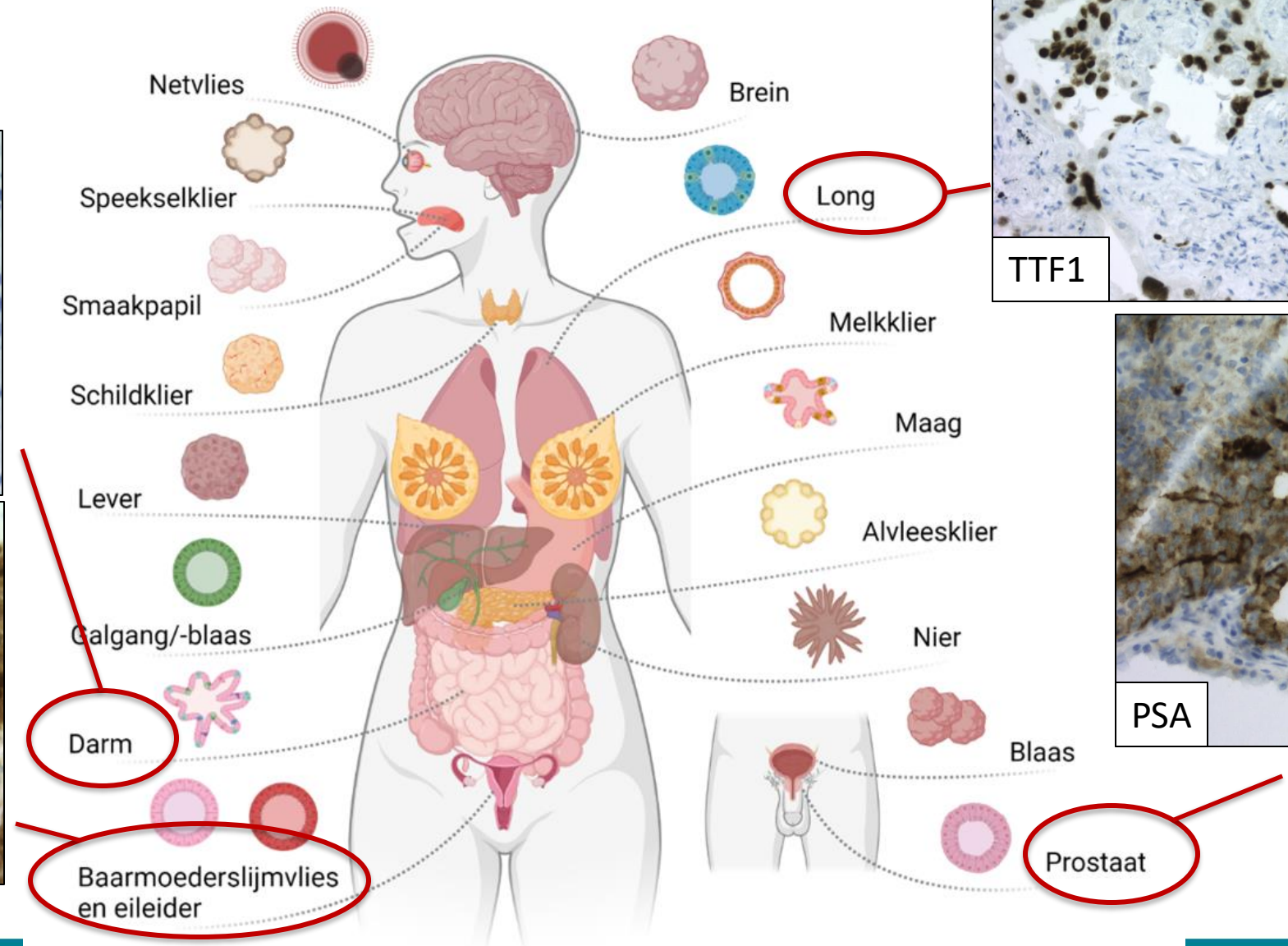
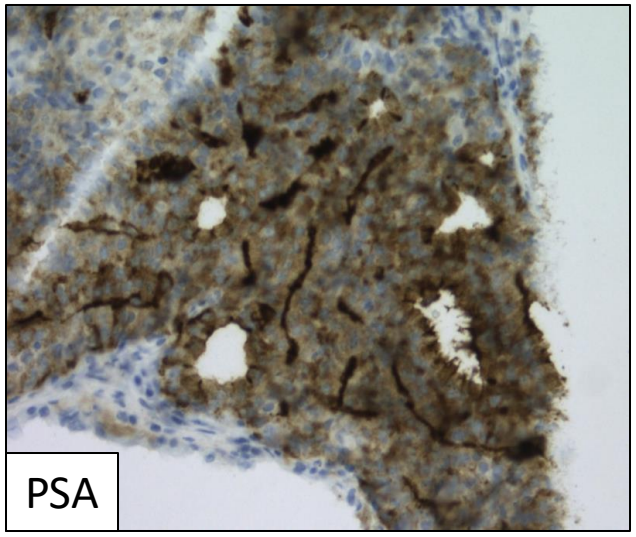


TTF1



PSA

Immuunhistochemie: origine van de kanker / waar is de kanker ontstaan?

Afbeelding: Universiteit van Utrecht

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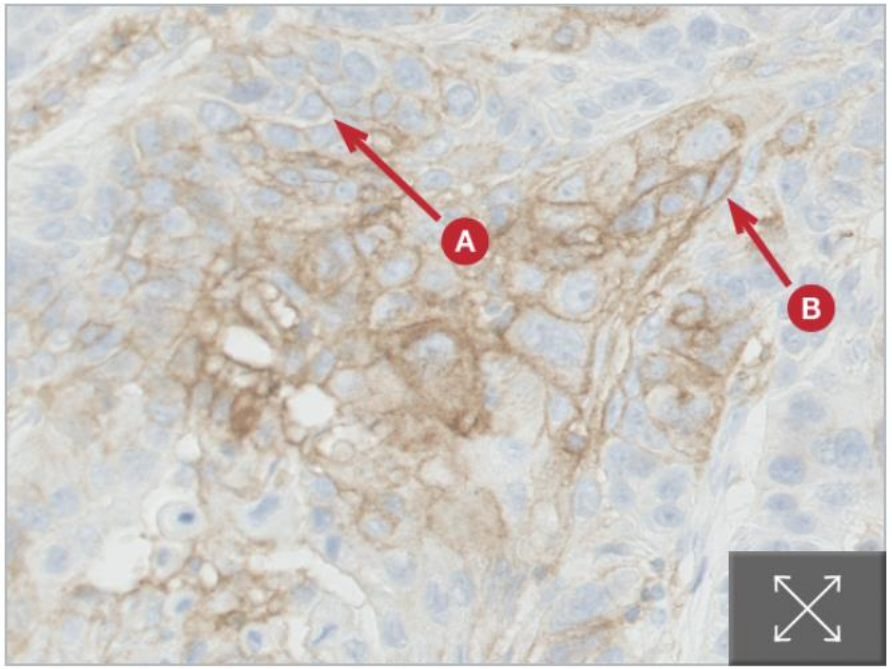

Image: NSCLC stained with PD-L1 primary antibody exhibiting a heterogeneous membrane staining pattern with various staining intensities: **(A)** partial membrane staining of tumor cell and **(B)** complete cell membrane staining (20× magnification).

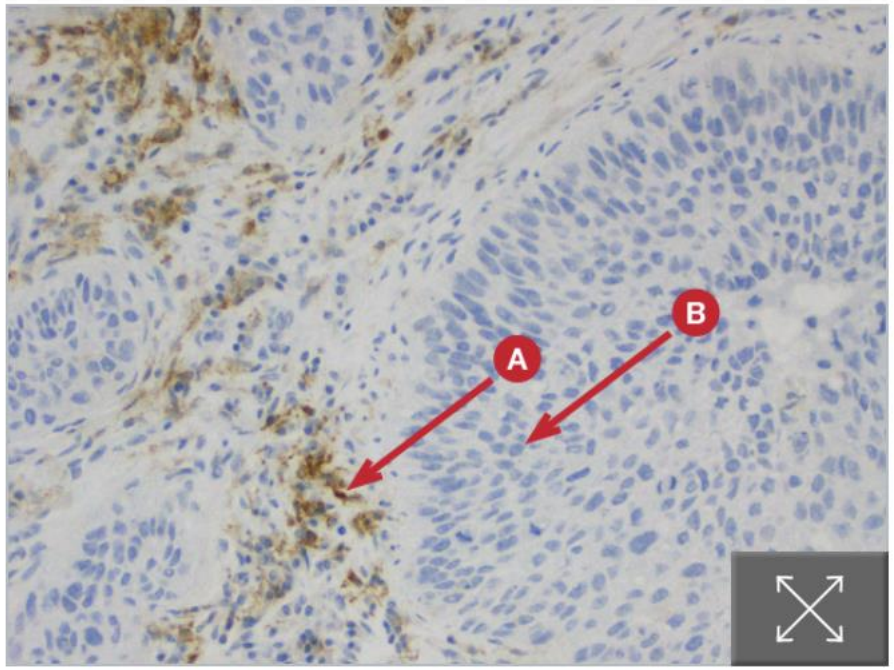

Image: NSCLC stained with PD-L1 primary antibody exhibiting **(A)** strong staining of the tumor associated immune cells and **(B)** lack of PD-L1 staining of tumor cells (20× magnification).

PD-L1

Immuunhistochemie: behandeling

Bron: DAKO

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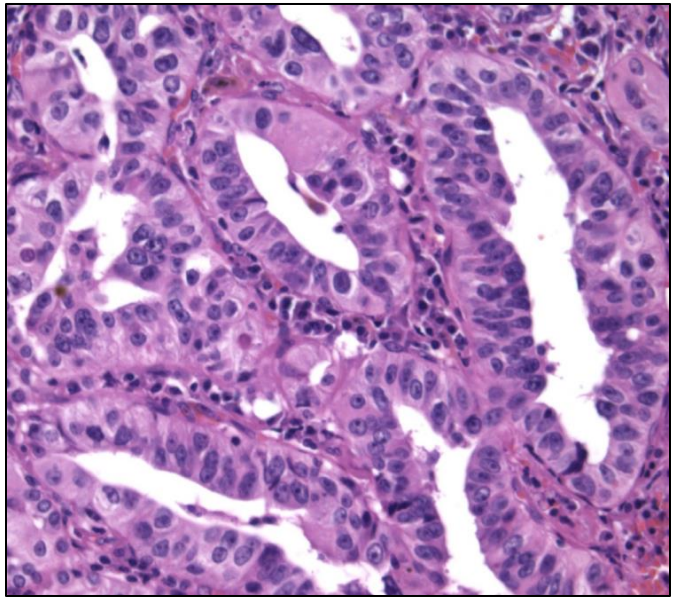
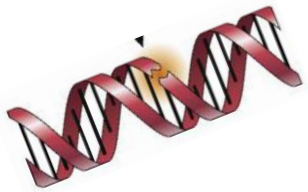
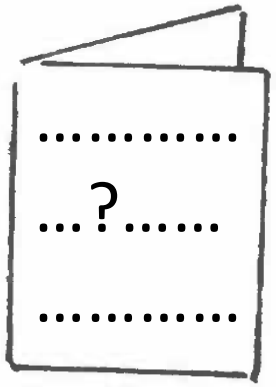
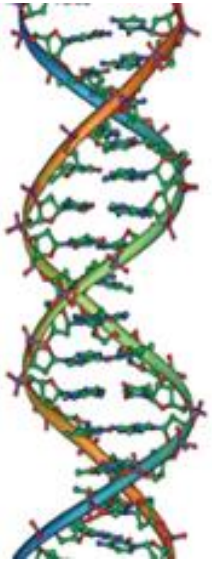
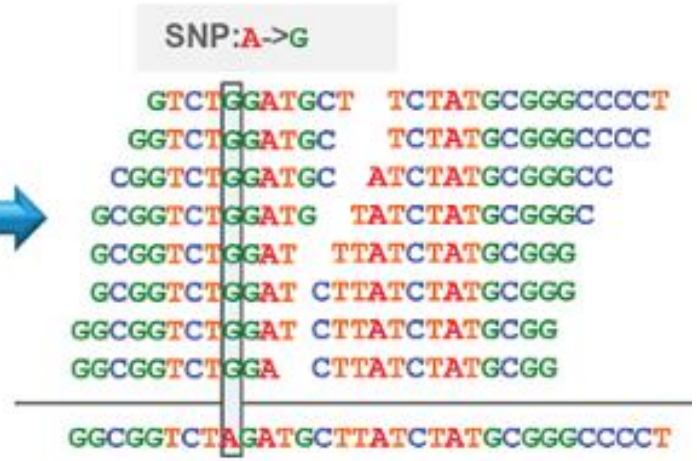


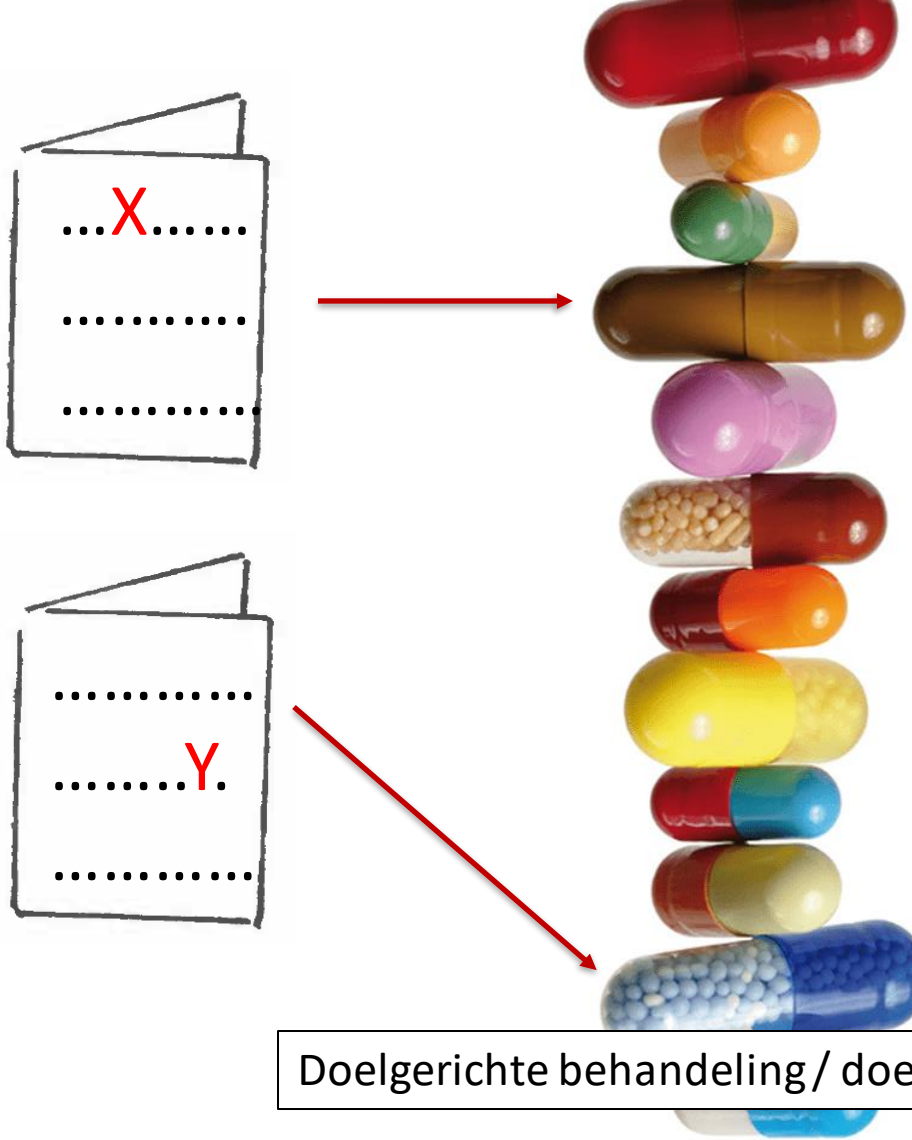




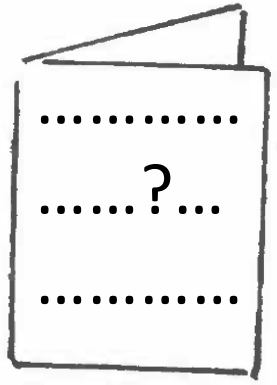


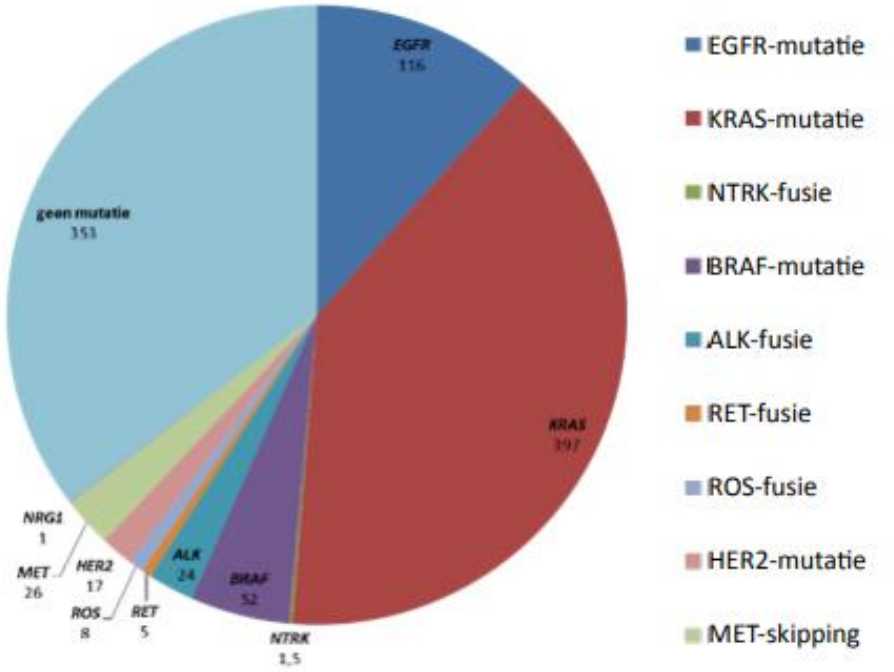


Moleculair biologisch onderzoek (NGS = next generation sequencing)



Doelgerichte behandeling / doelgerichte therapie

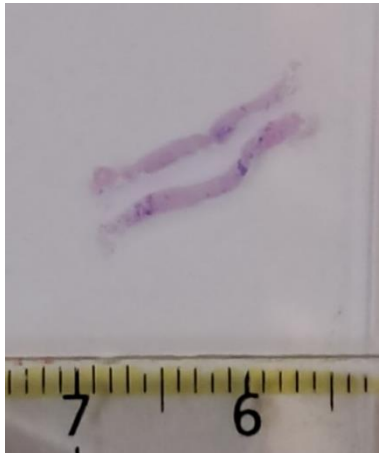


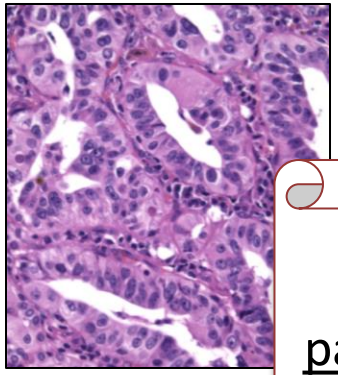


Het aantal DNA/RNA veranderingen per 1000 patiënten met stadium 4 niet-kleincellige longkanker type adenocarcinoom (Bron: PALGA en PATH)

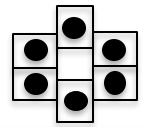
- Klinische gegevens
- Macroscopie
- Microscopie
- Aanvullend onderzoek (extra onderzoek, moleculair biologisch onderzoek)
- Conclusie (indien kwaadaardig: type kanker, PD-L1, moleculaire bevindingen)

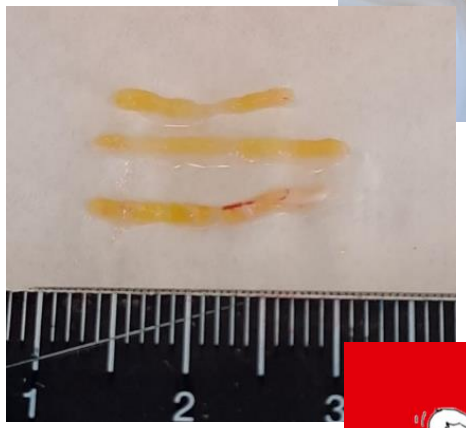
Pathologie verslag





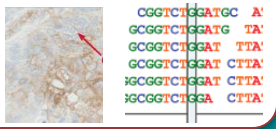
pathologie verslag

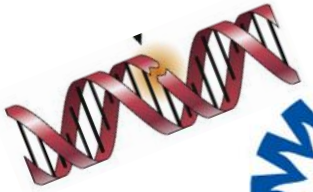




Vragen?

pathologie verslag





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