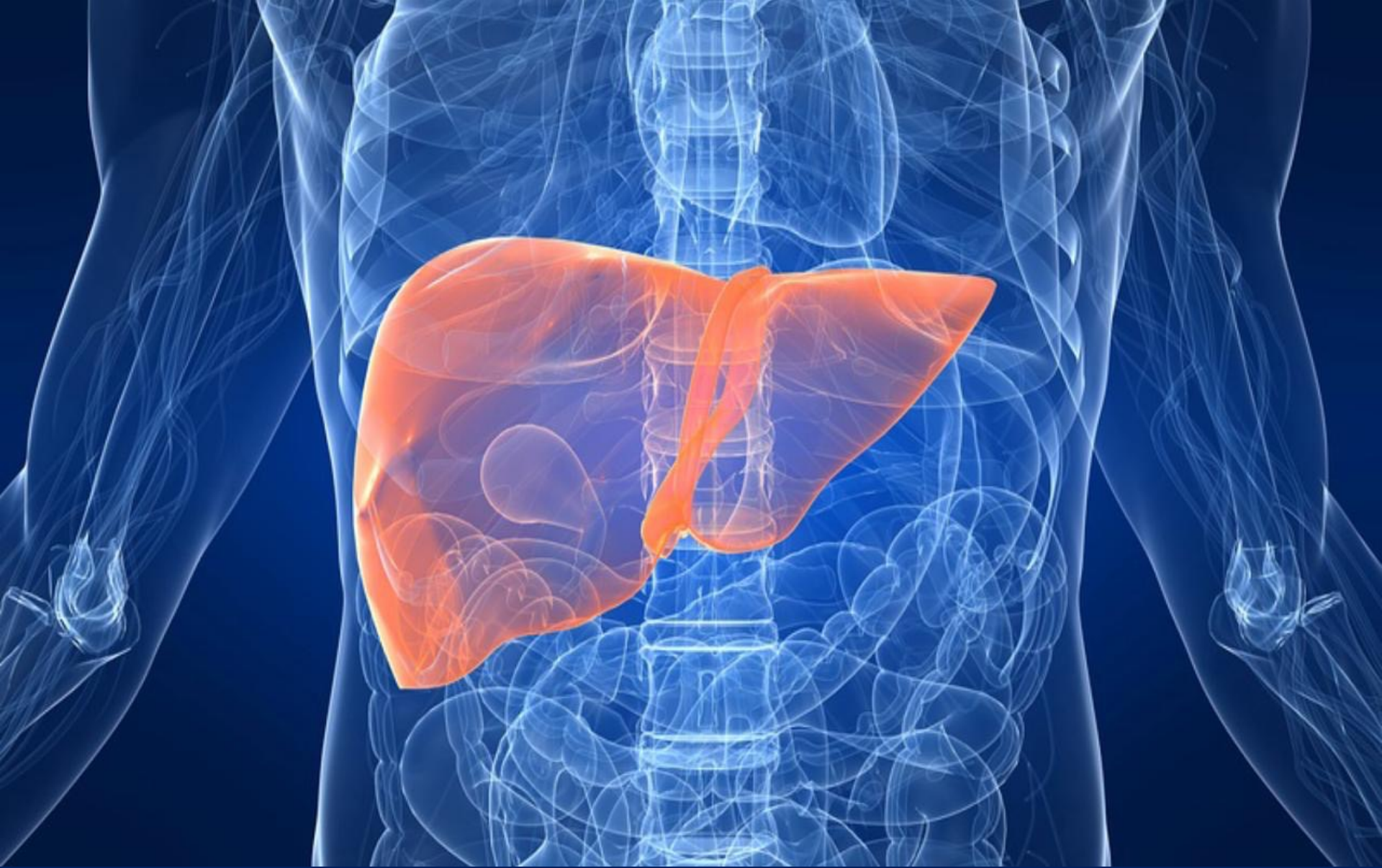
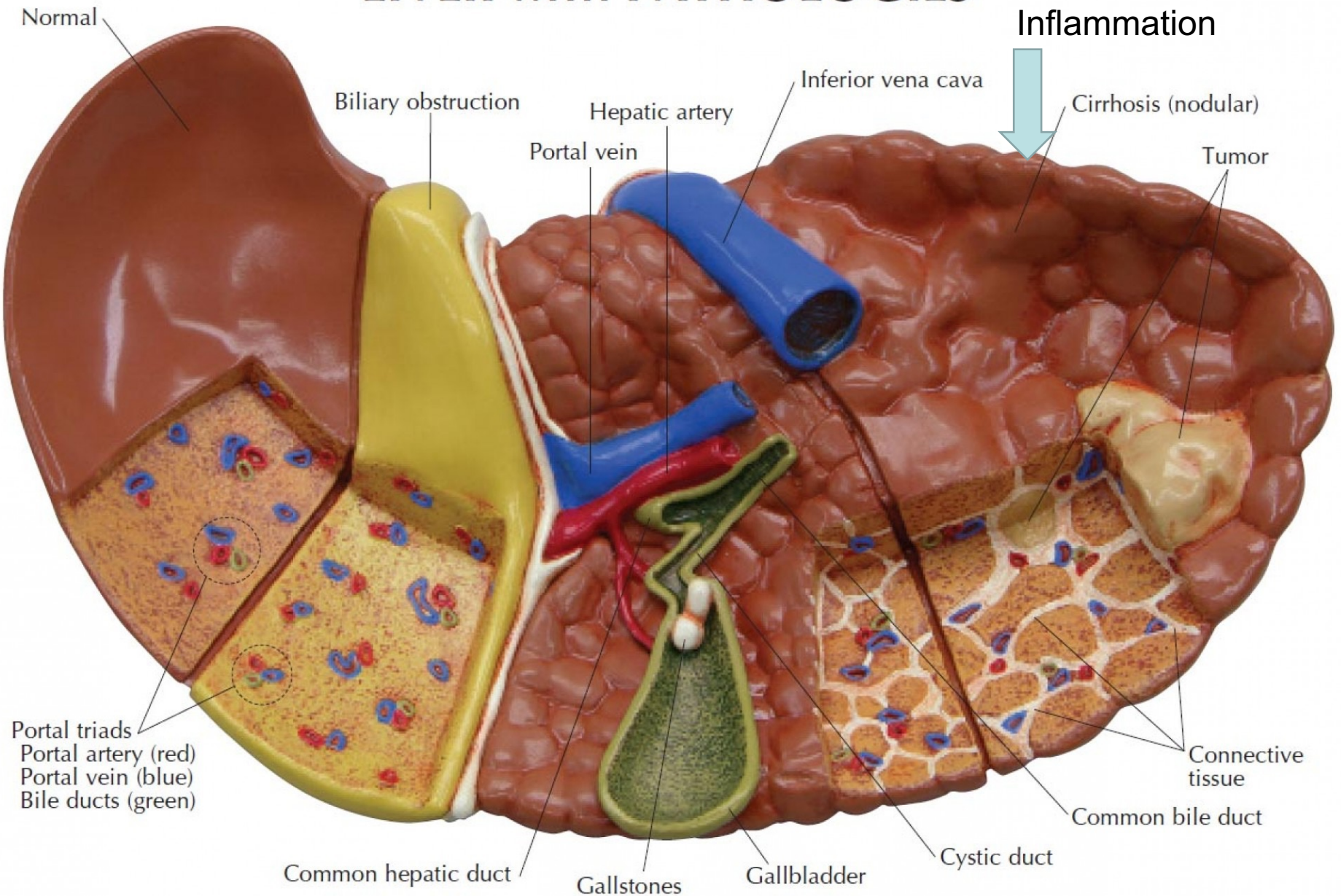




Leberpathologie

LIVER WITH PATHOLOGIES



Classification of main liver diseases

- **Viral liver diseases**

- Acute viral hepatitis
- Chronic viral hepatitis
- Viral liver cirrhosis

- **Alcoholic liver disease**

- Alcoholic steatosis
- Alcoholic hepatitis – acute and chronic
- Alcoholic liver cirrhosis

Non alcoholic liver disease (NAFLD)

- **Drug induced liver diseases**

- **Metabolic liver diseases**

- Wilson's disease
- Hereditary hemochromatosis
- α 1-antitrypsin deficiency

- **Autoimmune diseases**

- Autoimmune hepatitis
- Liver cirrhosis as the end stage of autoimmune hepatitis

- **Cholestatic diseases**

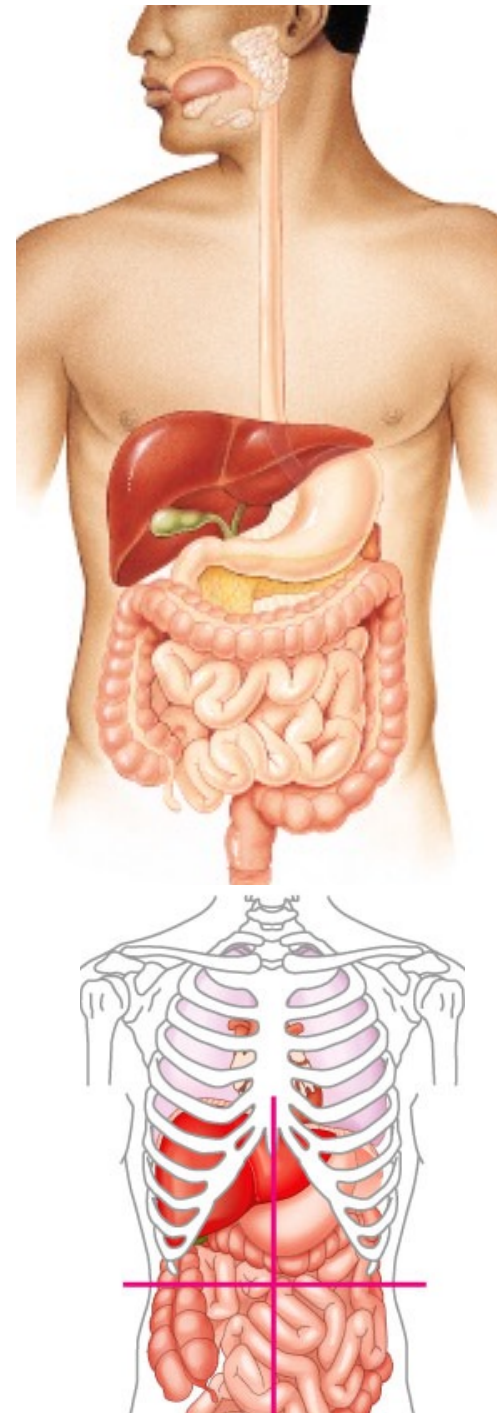
- Primary biliary cirrhosis
- Primary cholestatic hepatitis
- Secondary cholestatic hepatitis

- **Liver damage due to other diseases**

- **Liver tumors**

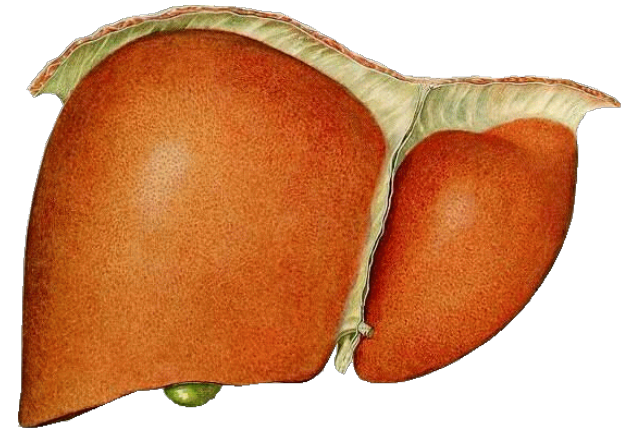
Leber (Hepar)

- Hepar = Leber
 - größte Drüse unseres Körpers
- Unterhalb des Zwerchfells
- Oberhalb des Magens
- Überwiegend rechtsseitig
- Geschützt durch Brustkorb
- Groß ~ 1.4 kg

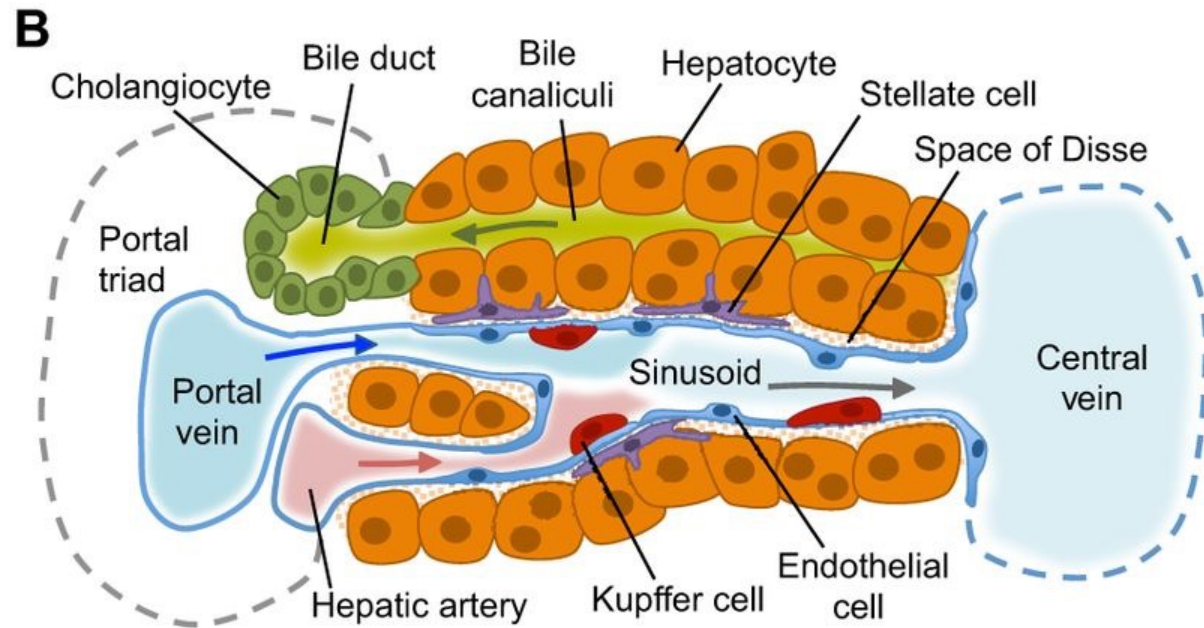
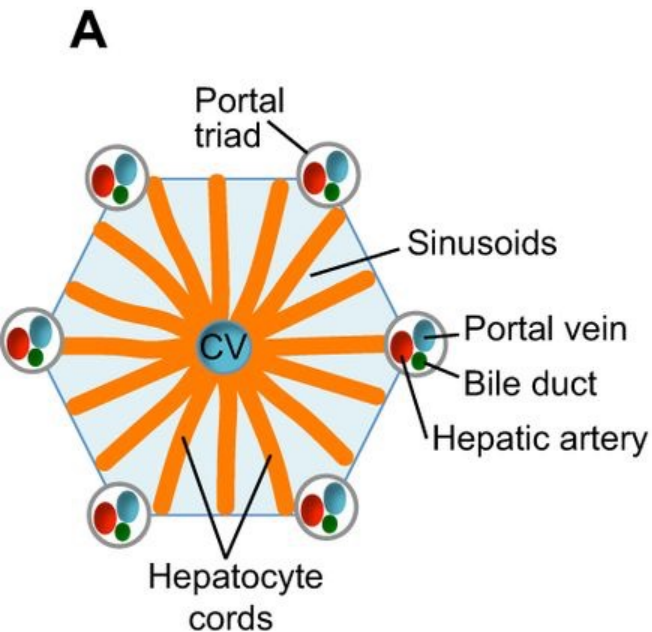
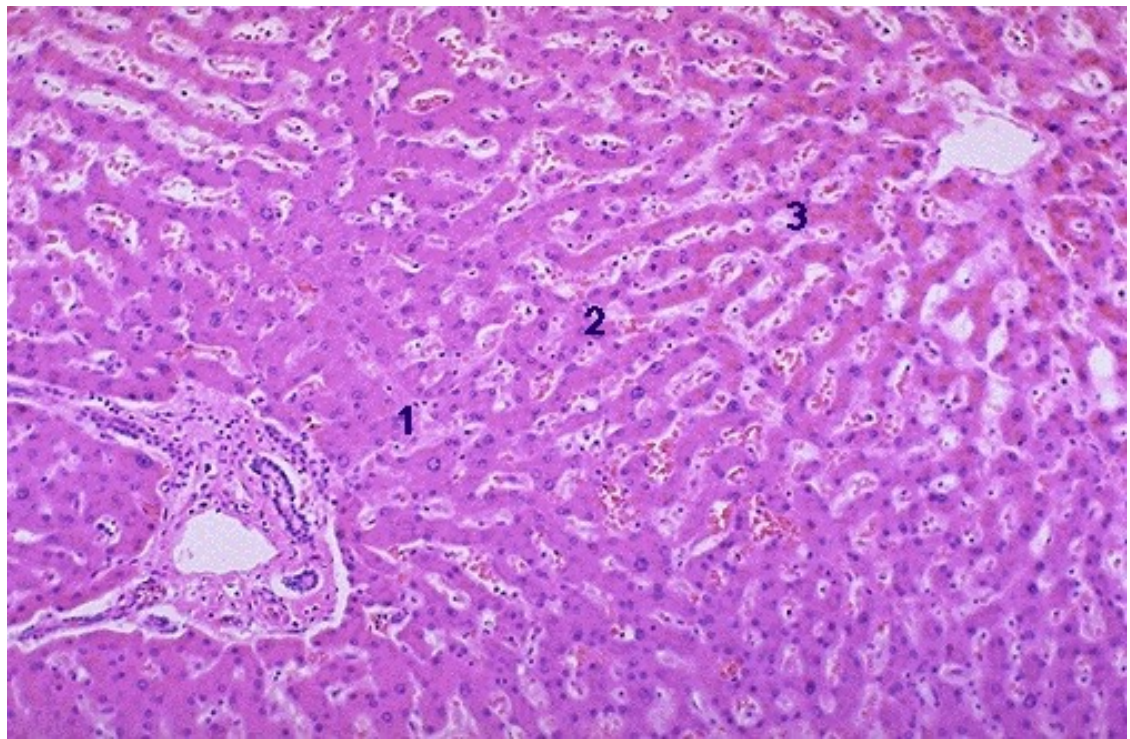


Funktion der Leber

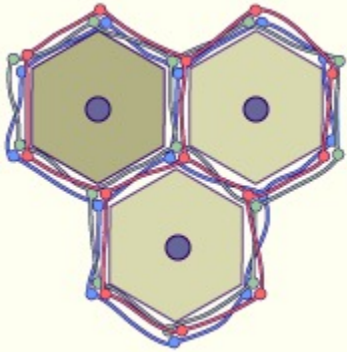
- Funktionen:
 - Proteinsynthese
 - Glukosehaushalt
 - Lipid- und Lipoproteinsynthese
 - Vitaminspeicher
 - Gerinnungsfaktorsynthese
 - Galleproduktion
 - Stoffwechsel (Medikamente, Giftstoffe)



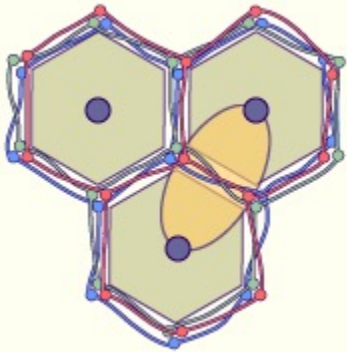
- **Portalfelder**
 - Bindegewebe mit Portalvene, Arterie und Gallengang
 - scharfe Begrenzung (Grenzlamelle)
- **Leberzellplatten**
 - 2-lagige radiäre Anordnung der Hepatozyten
 - dazwischen Sinusoide, Kupfferzellen, Itozellen
- **Histologische Gliederung**
 - Leberläppchen
 - Leberazinus



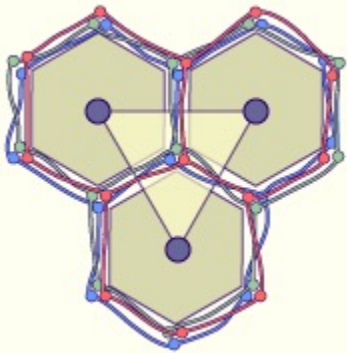
Mikroanatomie der Leber



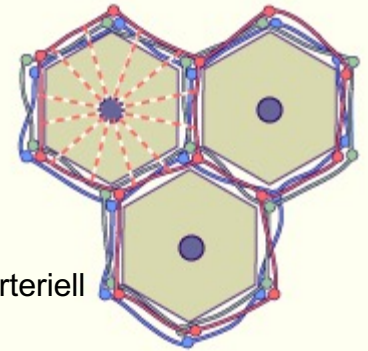
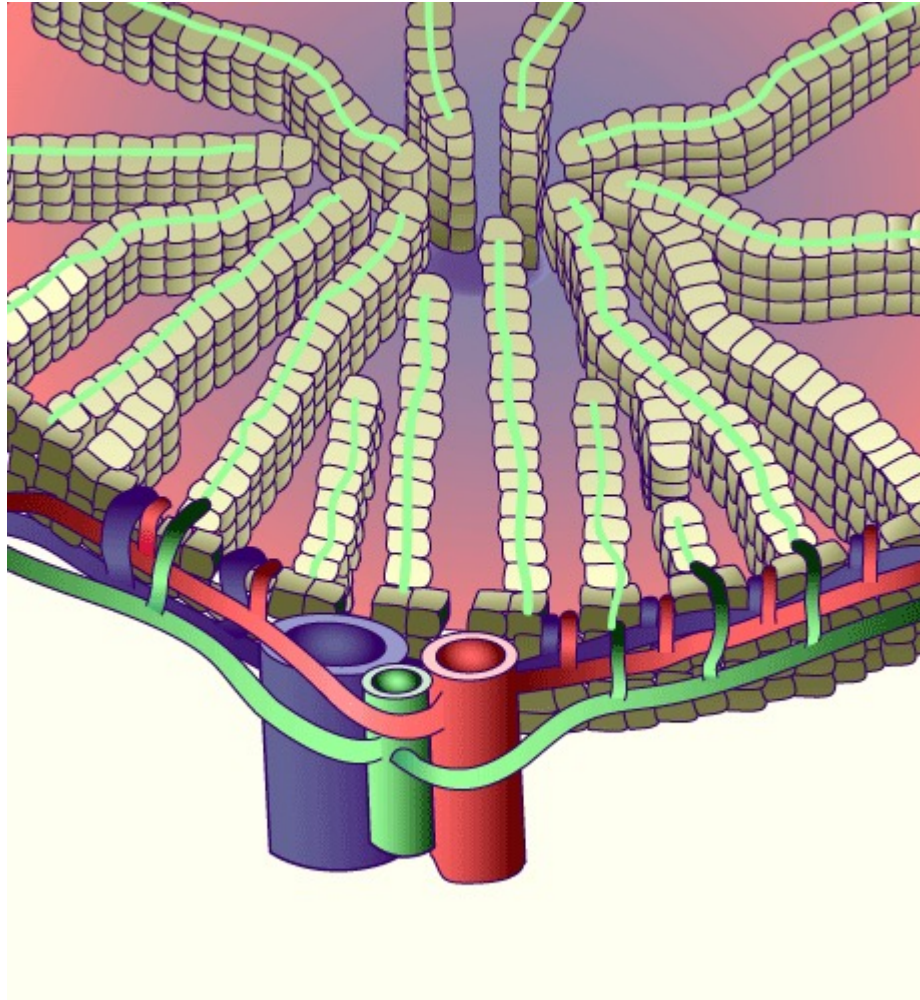
klassisches Läppchen



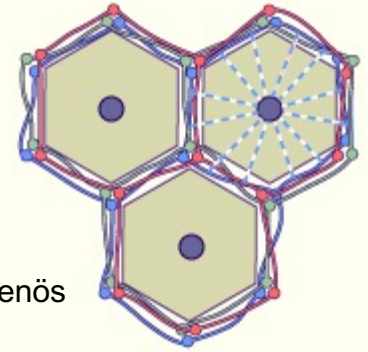
Leberazinus



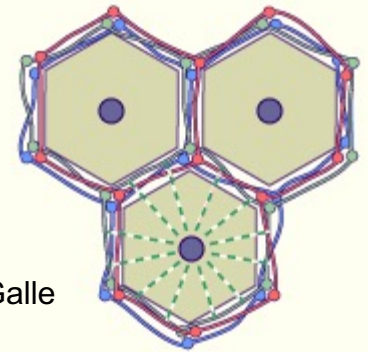
portales Läppchen



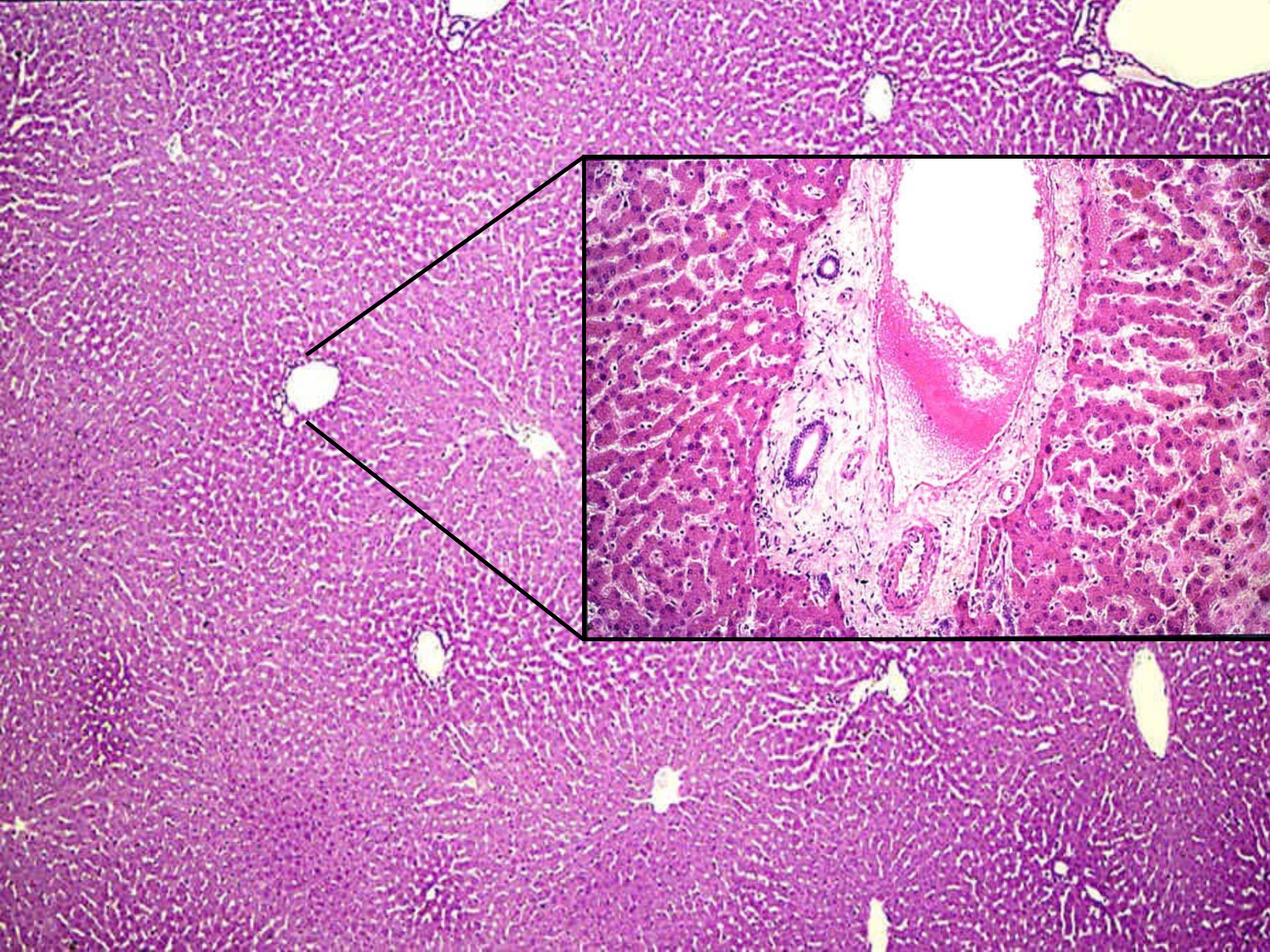
arteriell



venös



Galle



Leberschädigung

Leber sehr anpassungsfähiges Organ

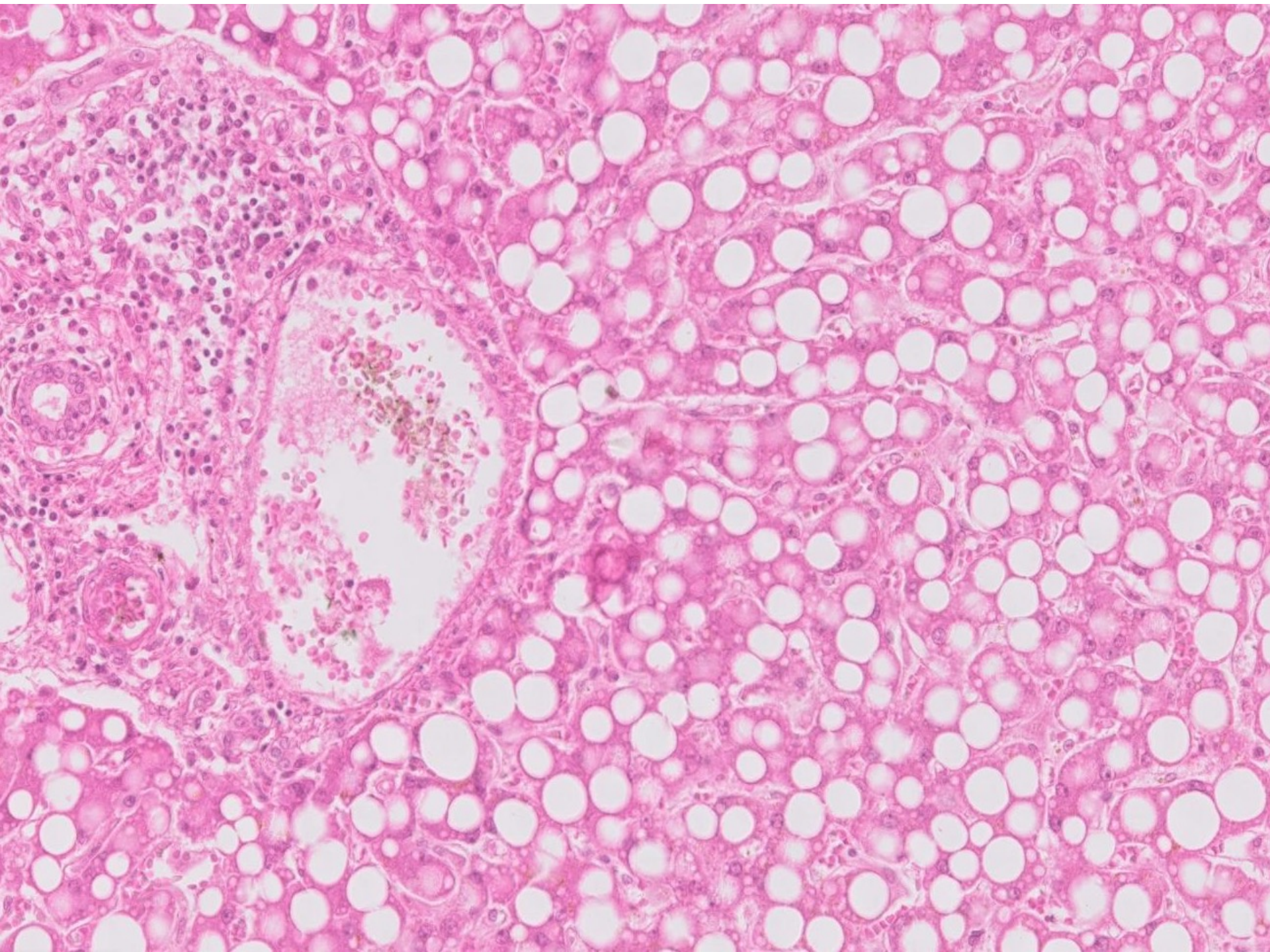
→ Reaktion auf Schädigung mit gut definierten Reaktionsmustern

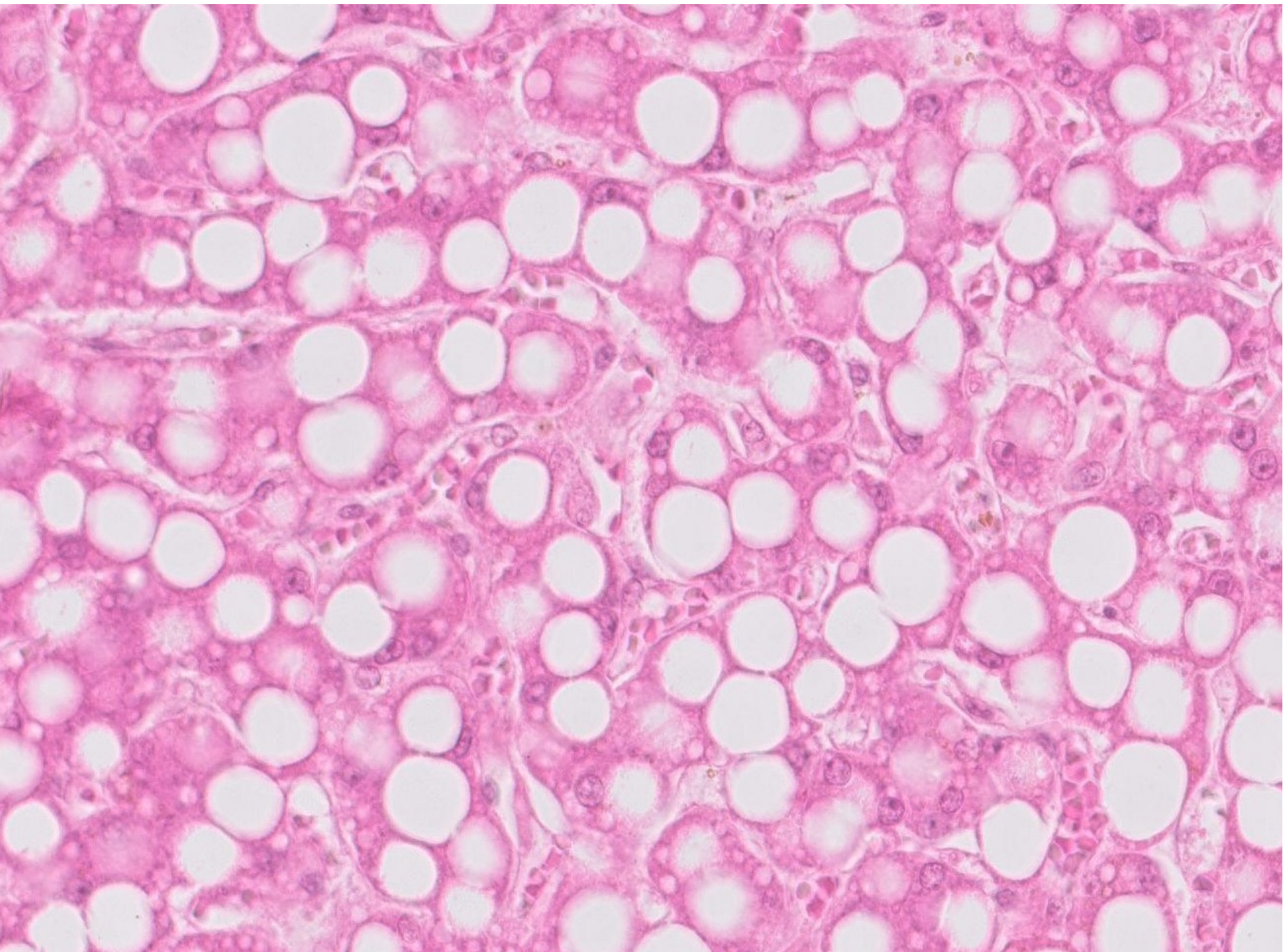
Reaktionsmuster - intrazellulär

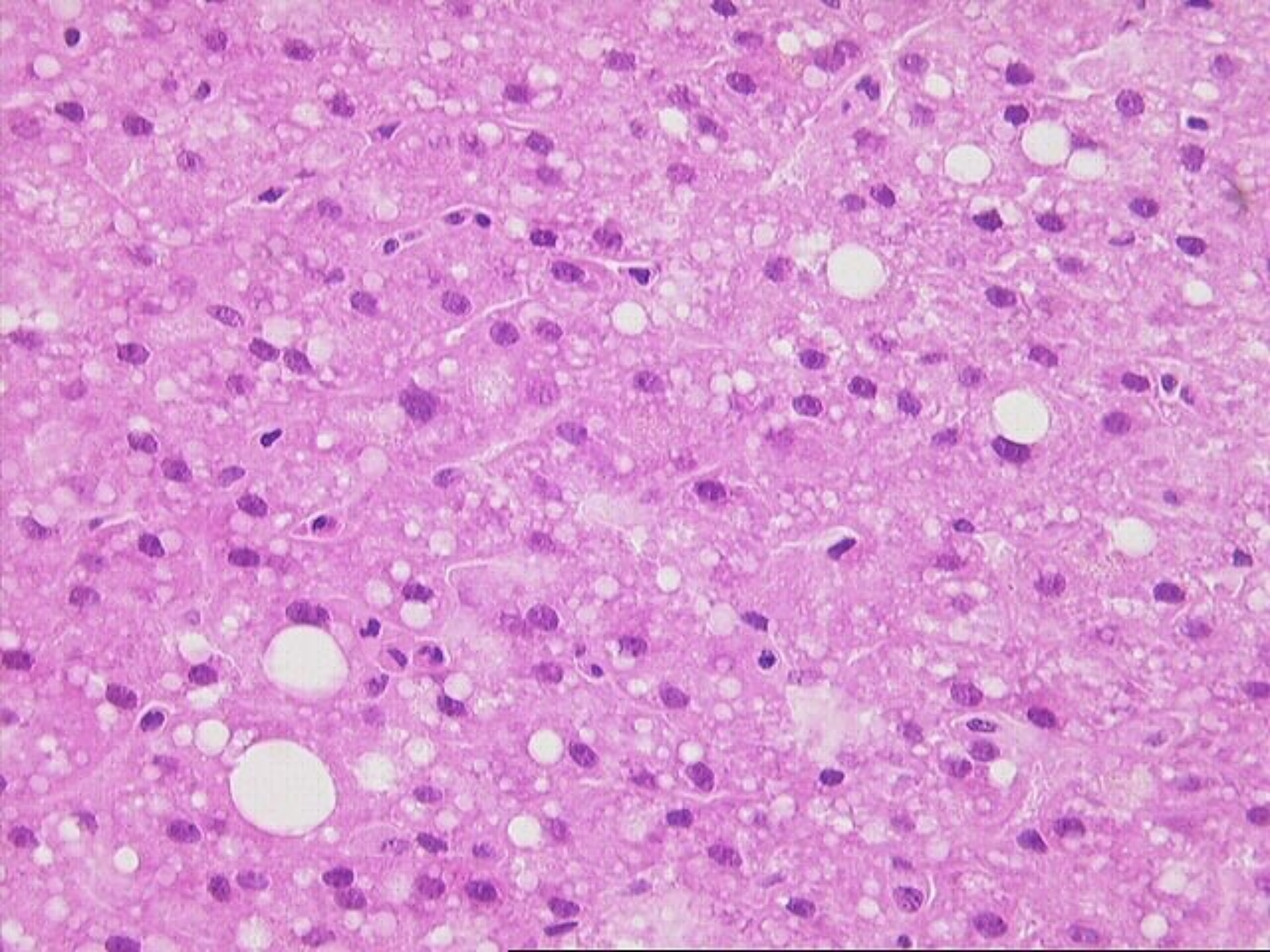
- Leberzellverfettung
- Eisenablagerung
- Kupferablagerung
- Glykogenspeicherung
- Corpuskuläre Zytoplasmaeinschlüsse
- Nichtcorpuskuläre Zytoplasmaläsionen

Verfettung

- intrazytoplasmatische Triglyceridvermehrung
 - z.B. Alkohol, Diabetes mellitus, Adipositas
- grobtropfig
- kleintropfig
- gemischt



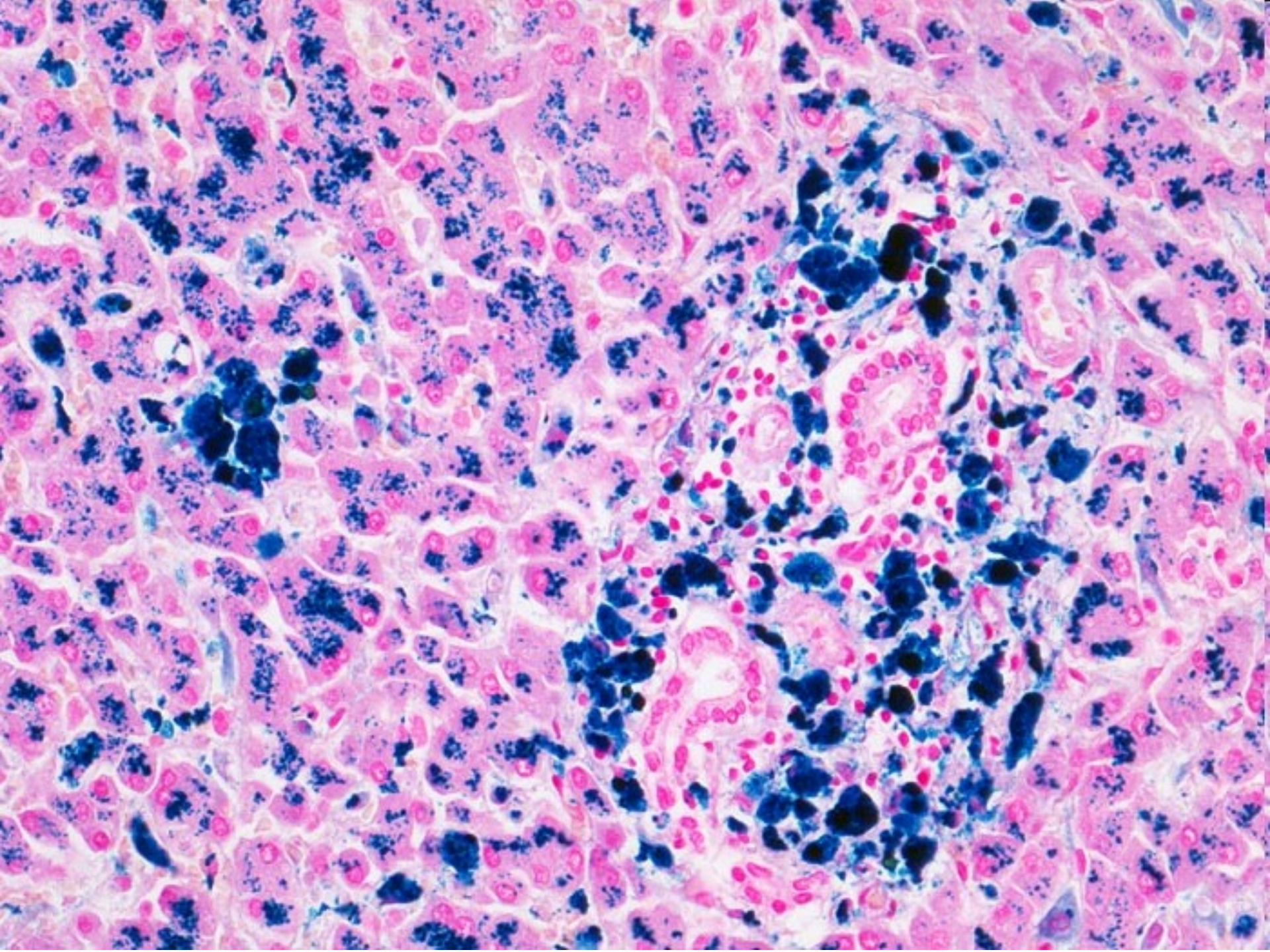


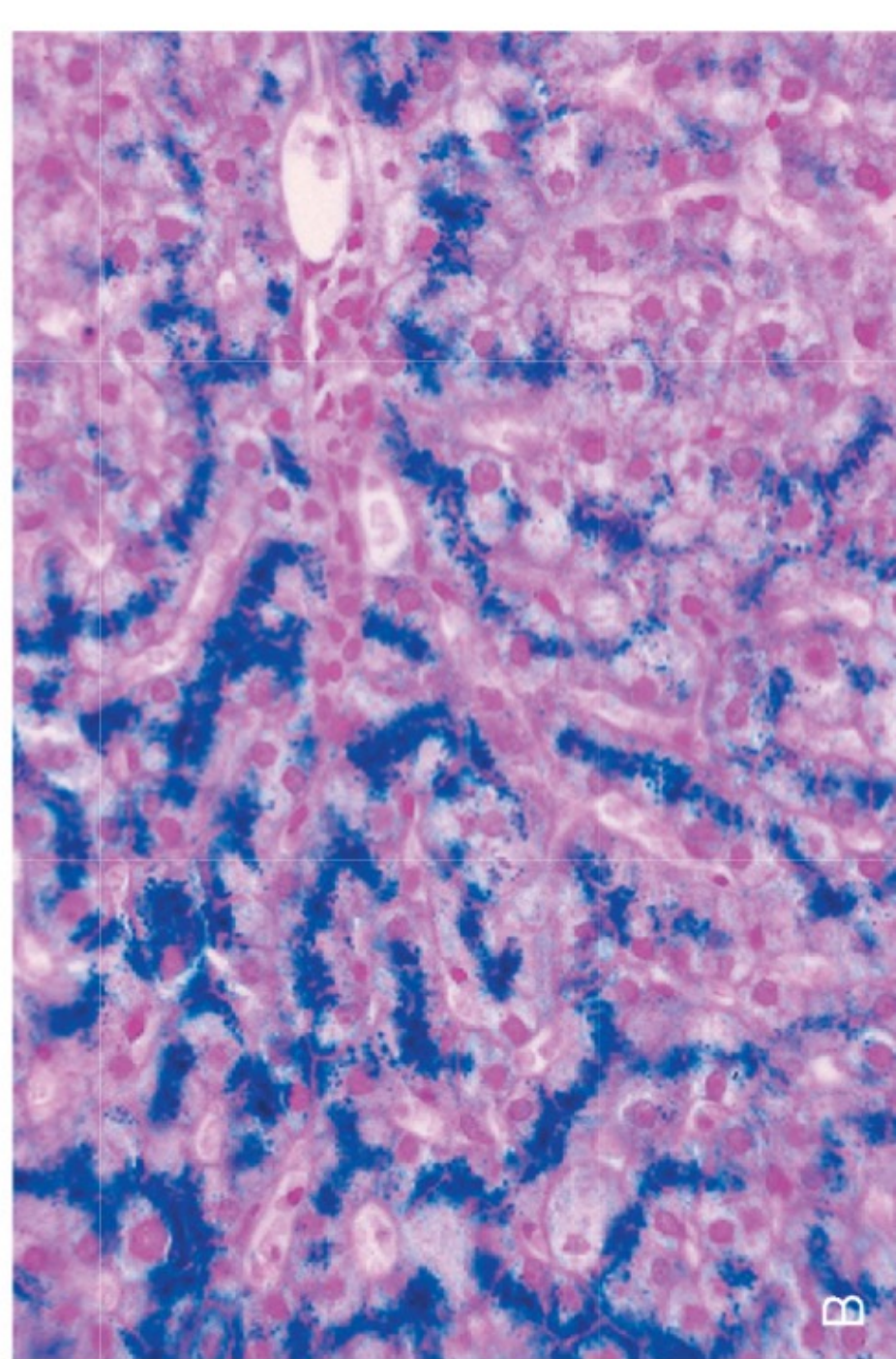
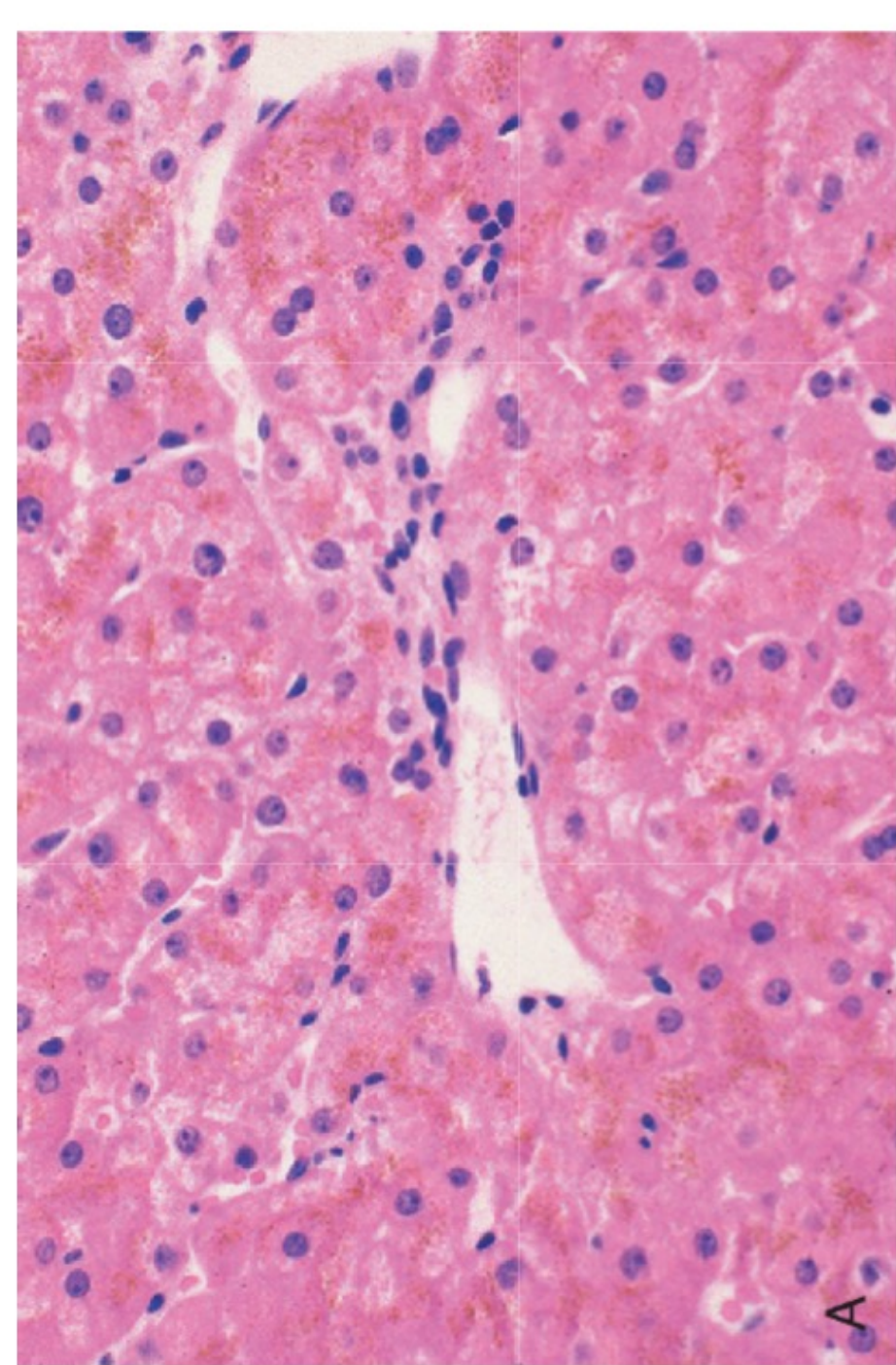




Eisenablagerung

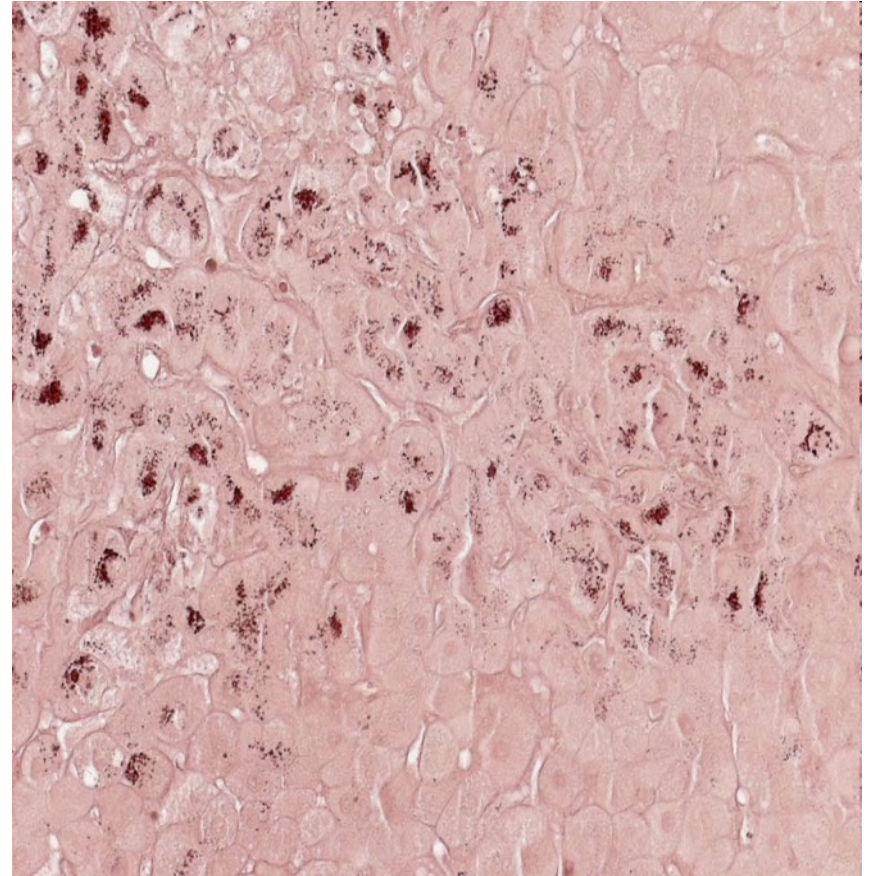
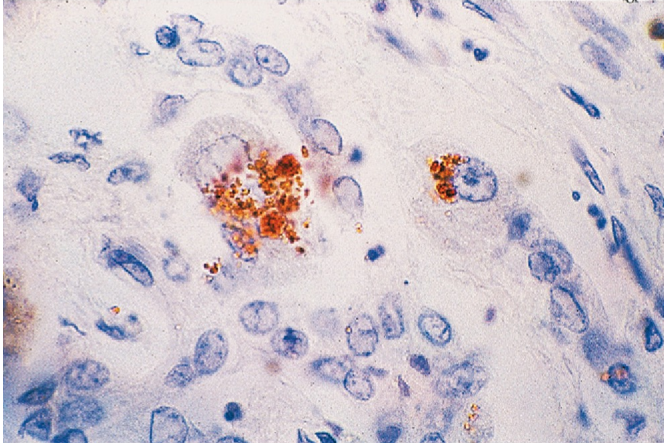
- Hepatozellulär – Hämochromatose
- Kupffer-Zellen und hepatozellulär – ethylisch
- Kupffer-Zellen - Hämolyse





Kupferablagerung

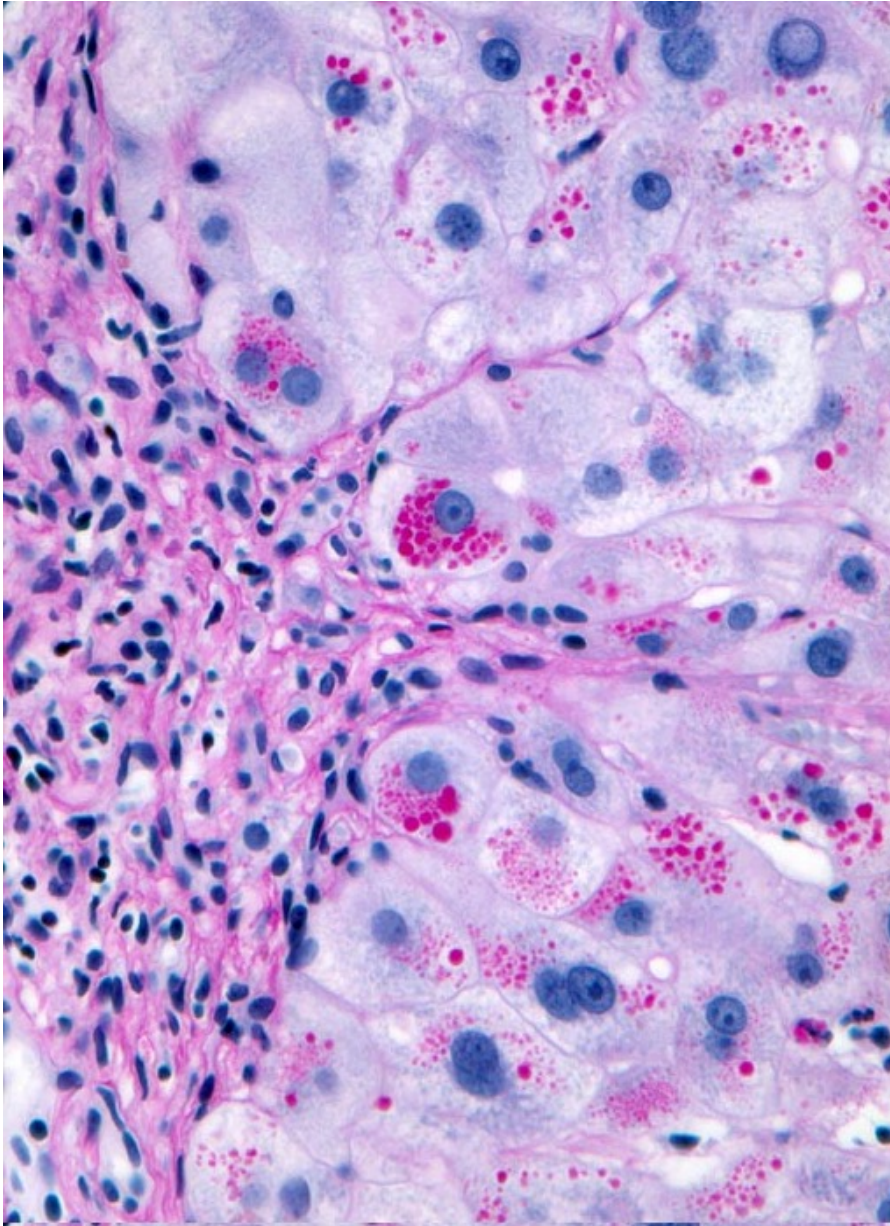
- prim. biliäre Cholangitis (PBC)
- prim. skleros. Cholangitis (PSC)
- Morbus Wilson



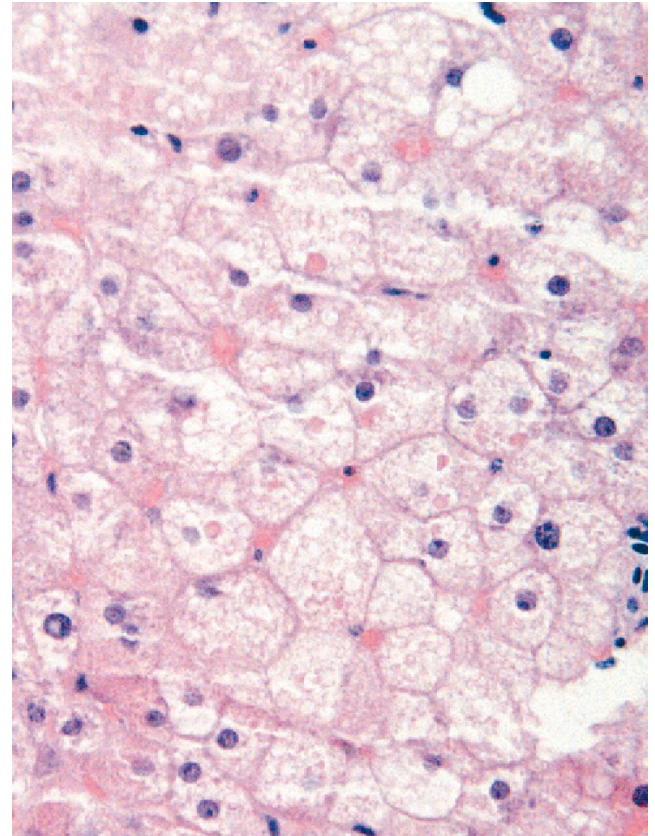
Korpuskuläre Einschlüsse

Rundliche Globuli (Kügelchen) oder Granula (Körnchen)

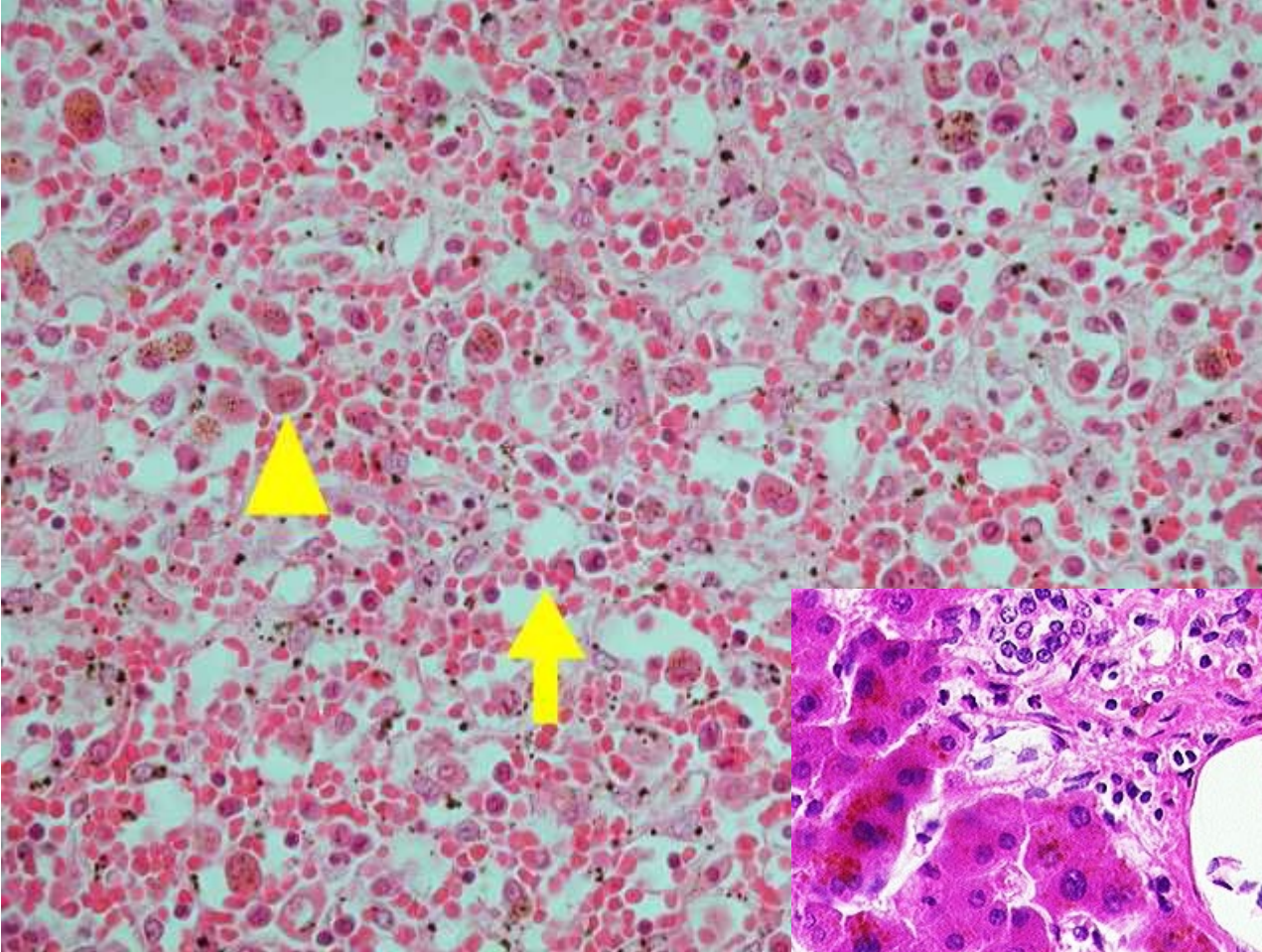
- Alpha-1-Antitrypsin
- Lipofuszin
- Zeroidgranula
- Fibrinogen (selten)
- Megamitochondrien



Alpha-1-Antitrypsin

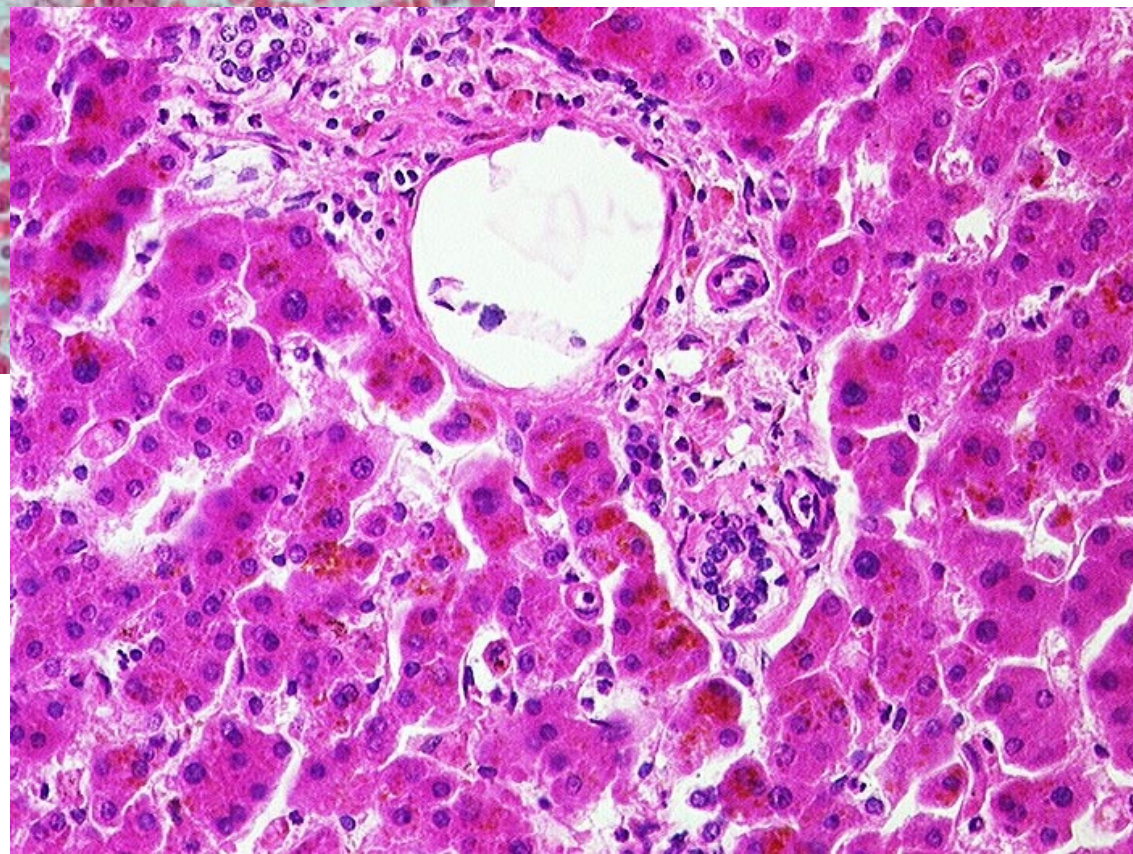


Megamitochondrien



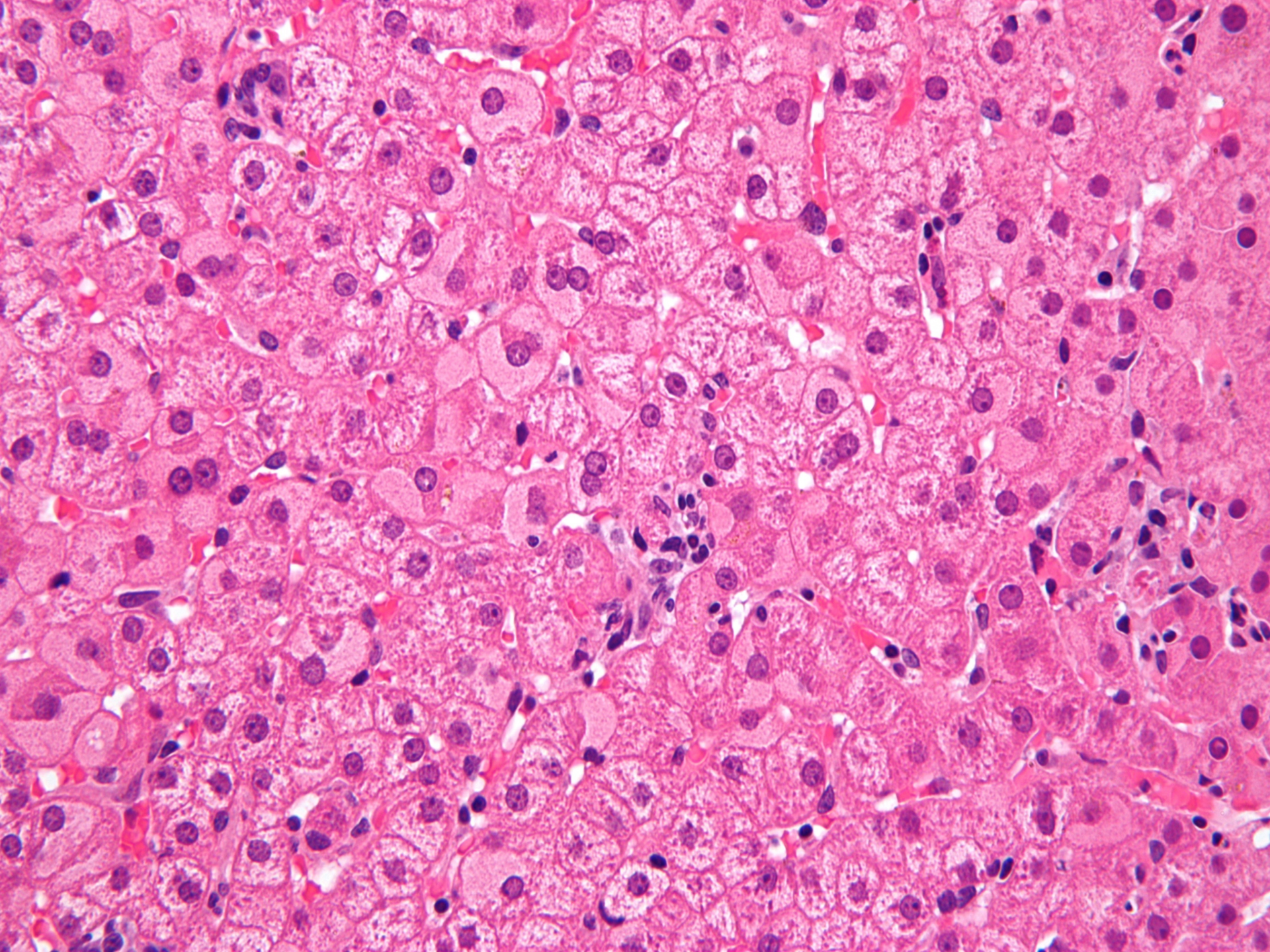
Lipofuszin

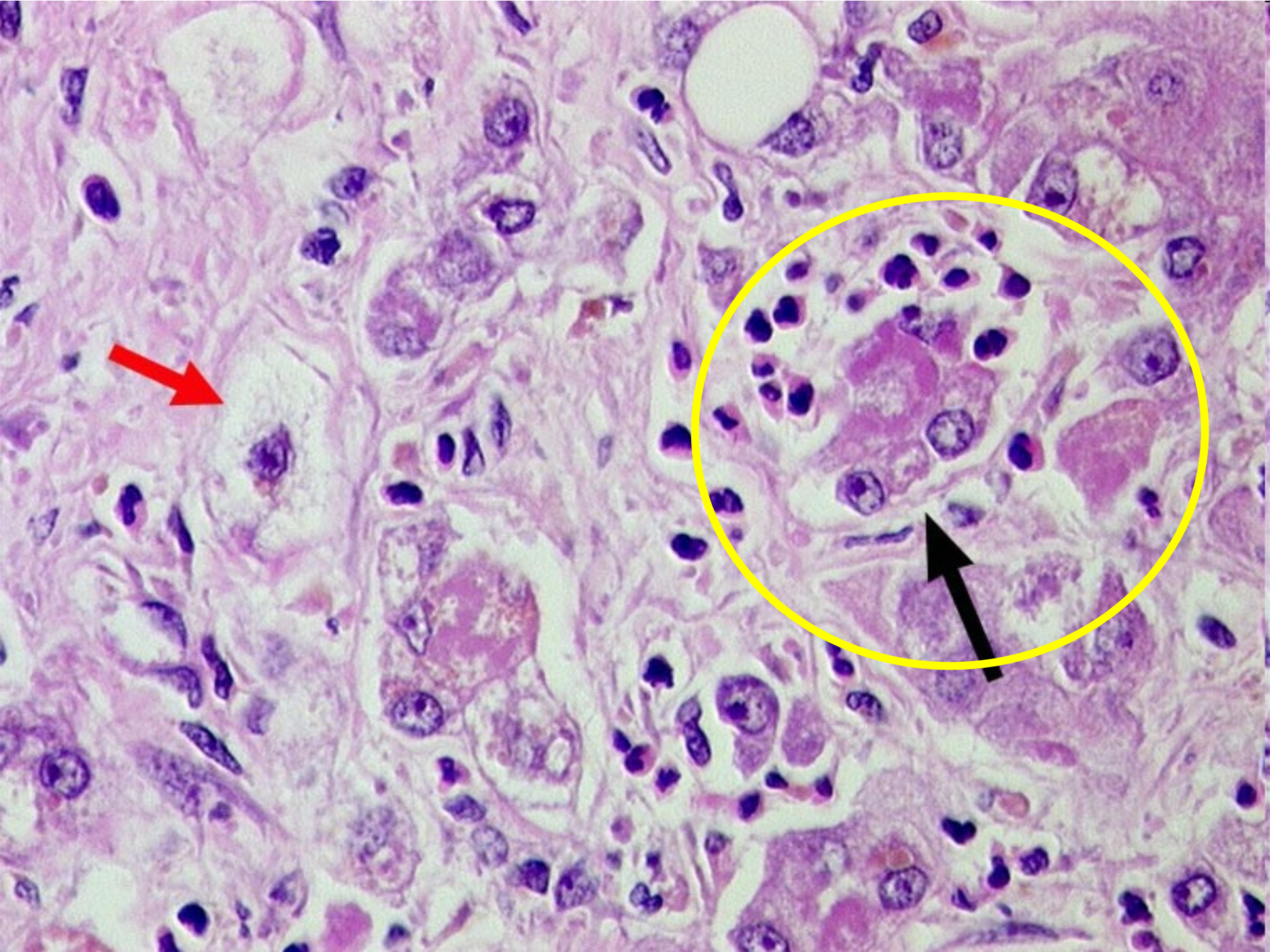
Zeroidgranula



Nichtkorpuskuläre Einschlüsse

- Milchglaszellen
 - Fokal bei Hep. B
 - Diffus bei Induktion arzneimittelabbauender Enzyme
- Mallorykörperchen
 - z.B.
 - ethyltox. Hepatitis
 - NASH
 - Morbus Wilson

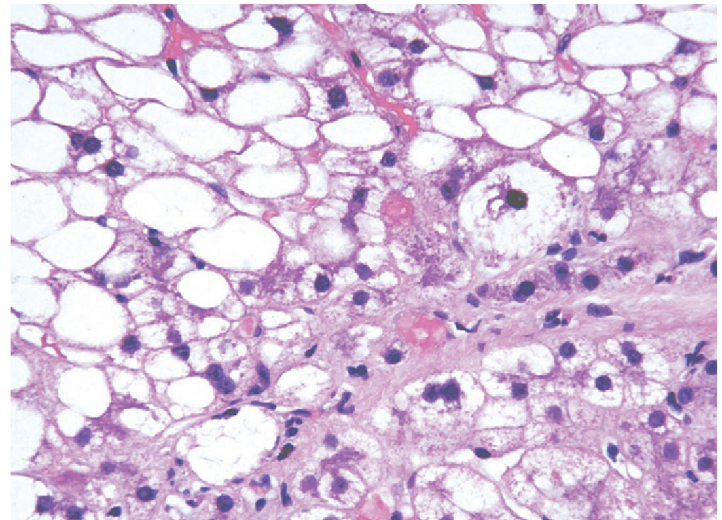


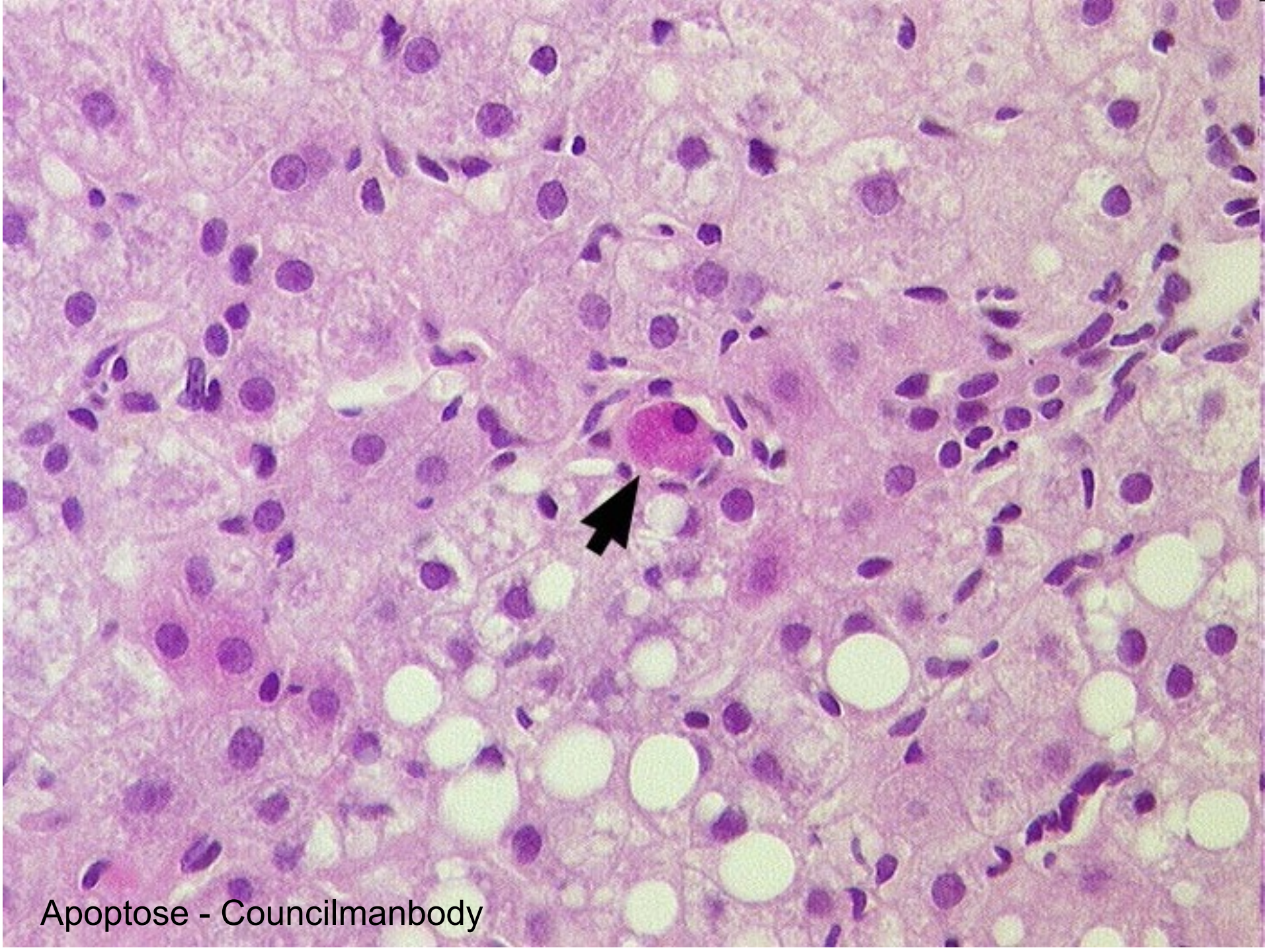


Reaktionsmuster - degenerativ

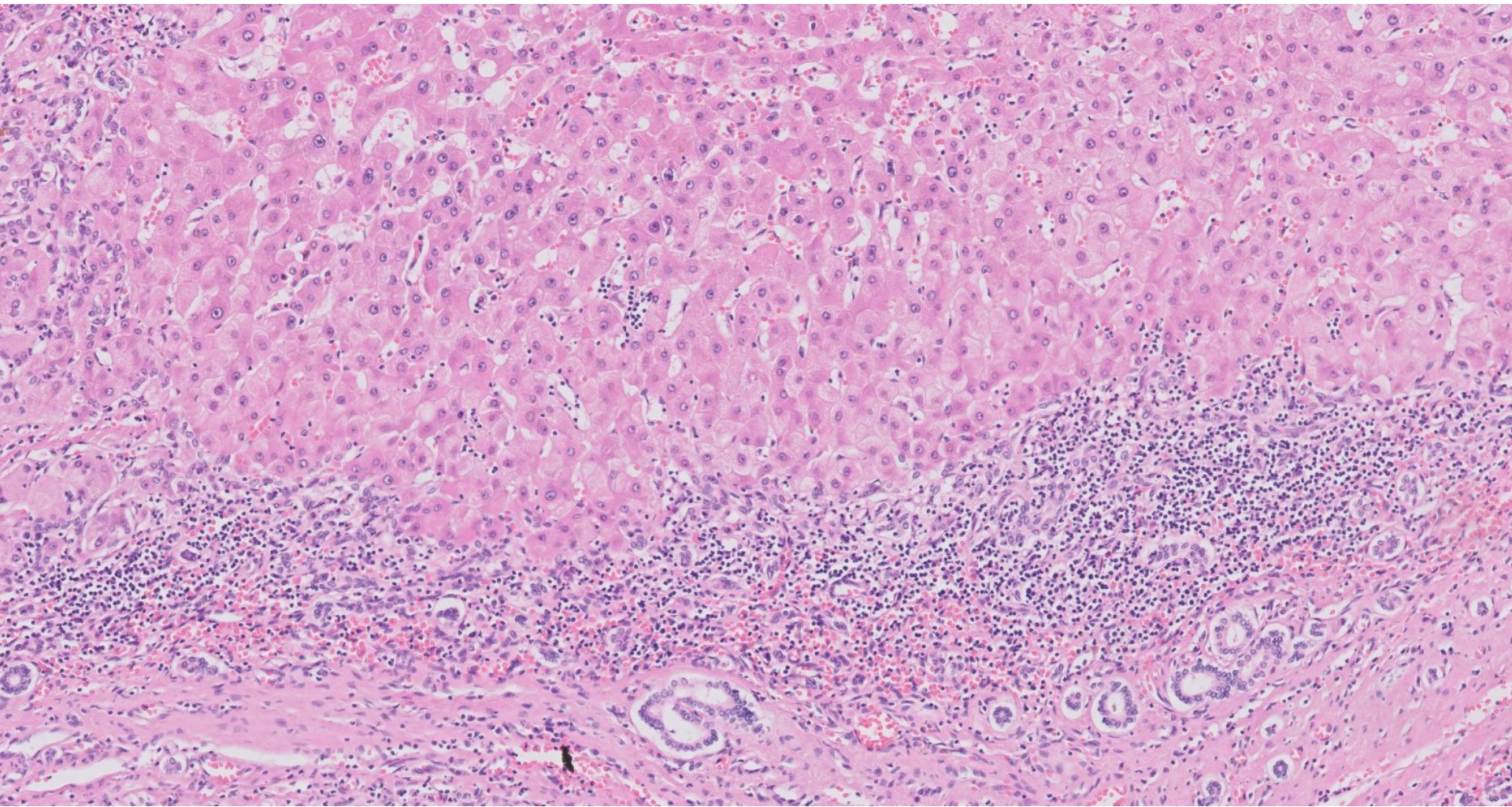
meist irreversible Zellschädigung → oft Zelltod

- Hydropische Schwellung
- Lytische Zellnekrose
- Apoptose
- Flecknekrose
- Konfluierende Nekrose
- Mottenfraßnekrose (=Interface-Hepatitis)

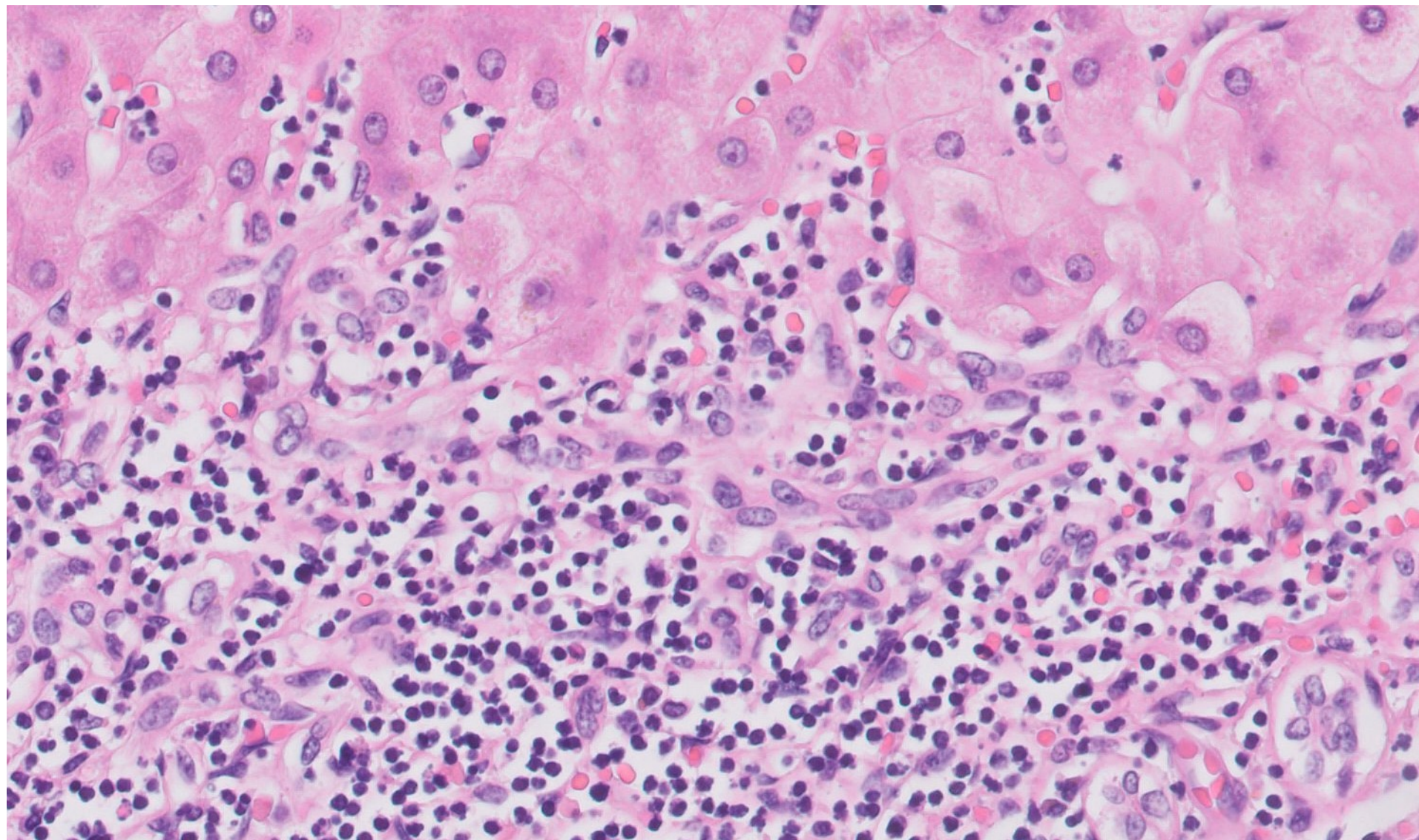




Apoptose - Councilmanbody



Interface hepatitis



Interface hepatitis

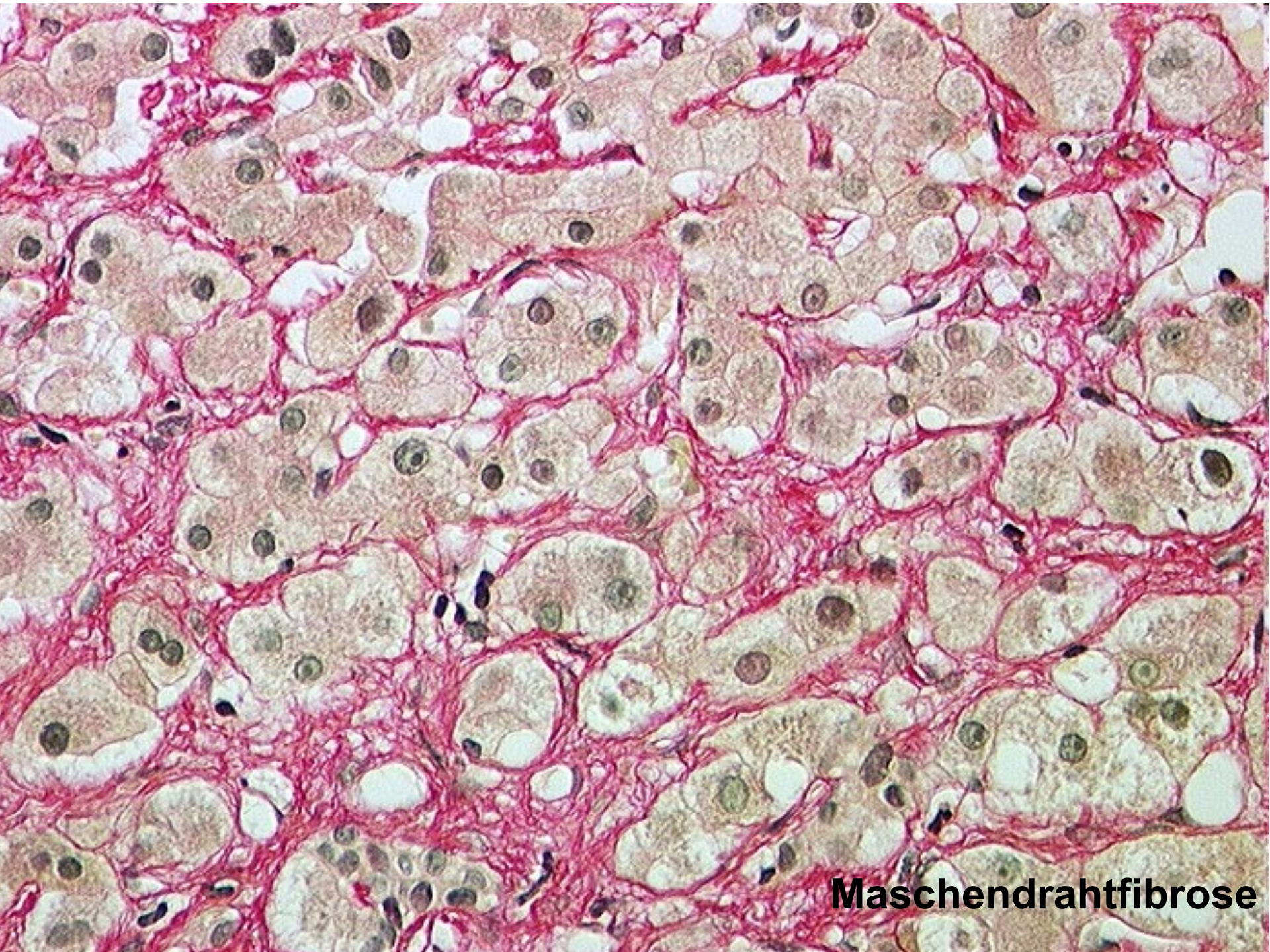
Reaktionsmuster - regenerativ

Leber hat ein hohes Regenerationspotenzial

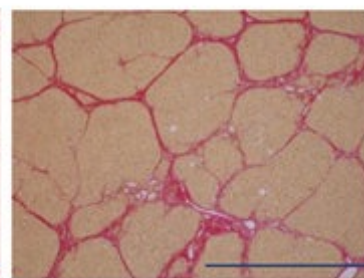
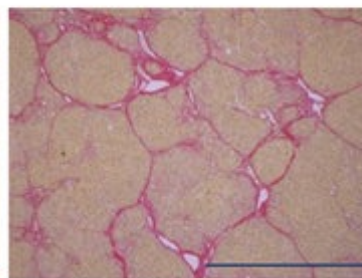
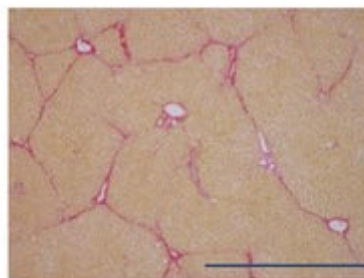
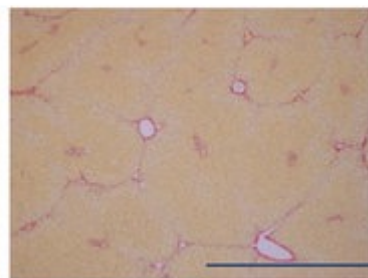
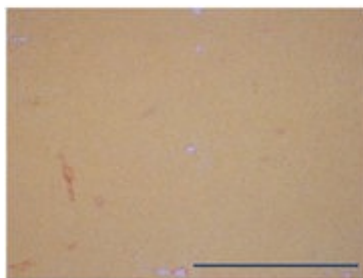
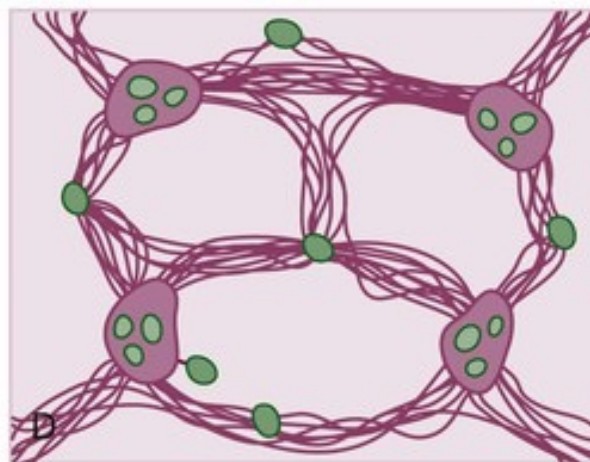
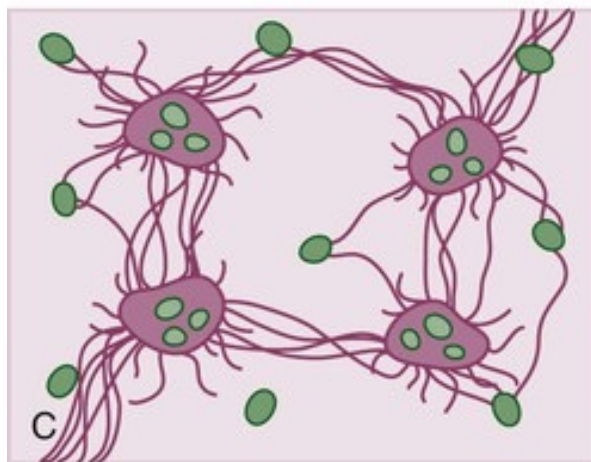
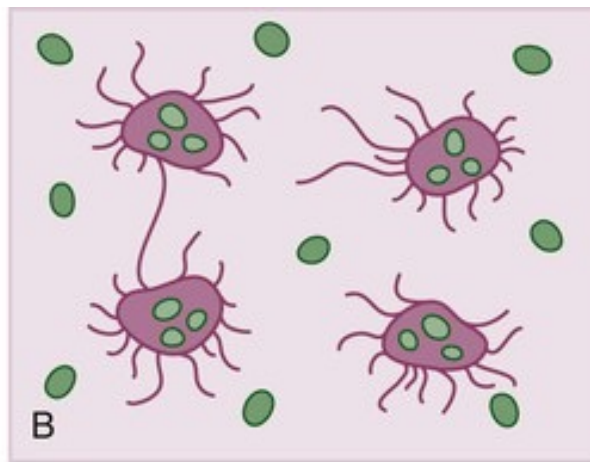
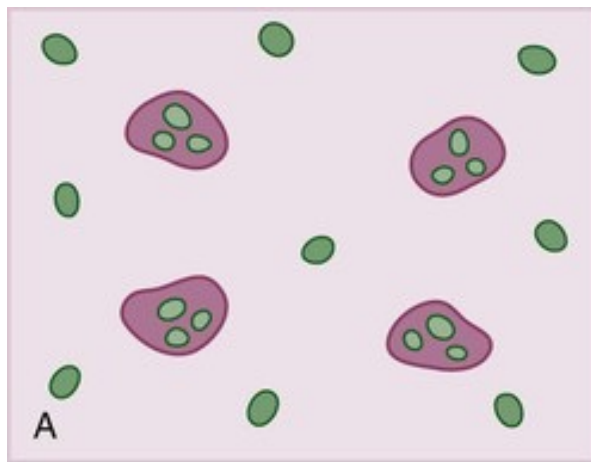
- Hepatozellulär
- Duktulär
- Knotige Leberregeneration
 - Mikro
 - Makro

Reaktionsmuster - Fibrose

- Maschendrahtfibrose / perizelluläre Fibrose (NASH / ASH)
- Portale Fibrose



Maschendrahtfibrose



Reaktionsmuster - Zirrhose

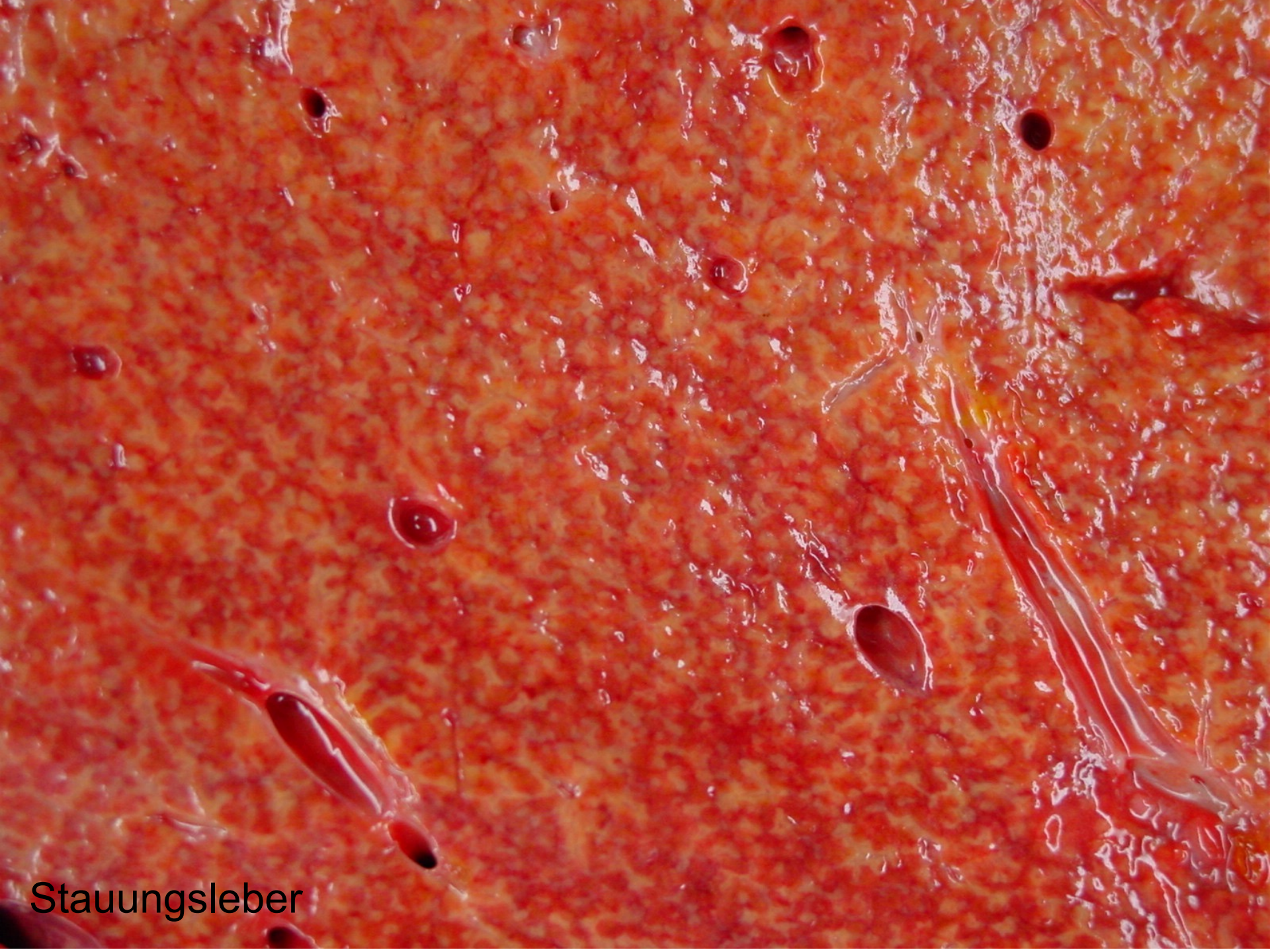
- Architektur der gesamten Leber durch fibröse Septen gestört
- Septen porto-portal, porto-zentral, zentral-zentral
- Ausbildung von Parenchymknoten (mikronodulär <3mm, makronodulär >3mm)

Reaktionsmuster - Portalfeldkonfiguration

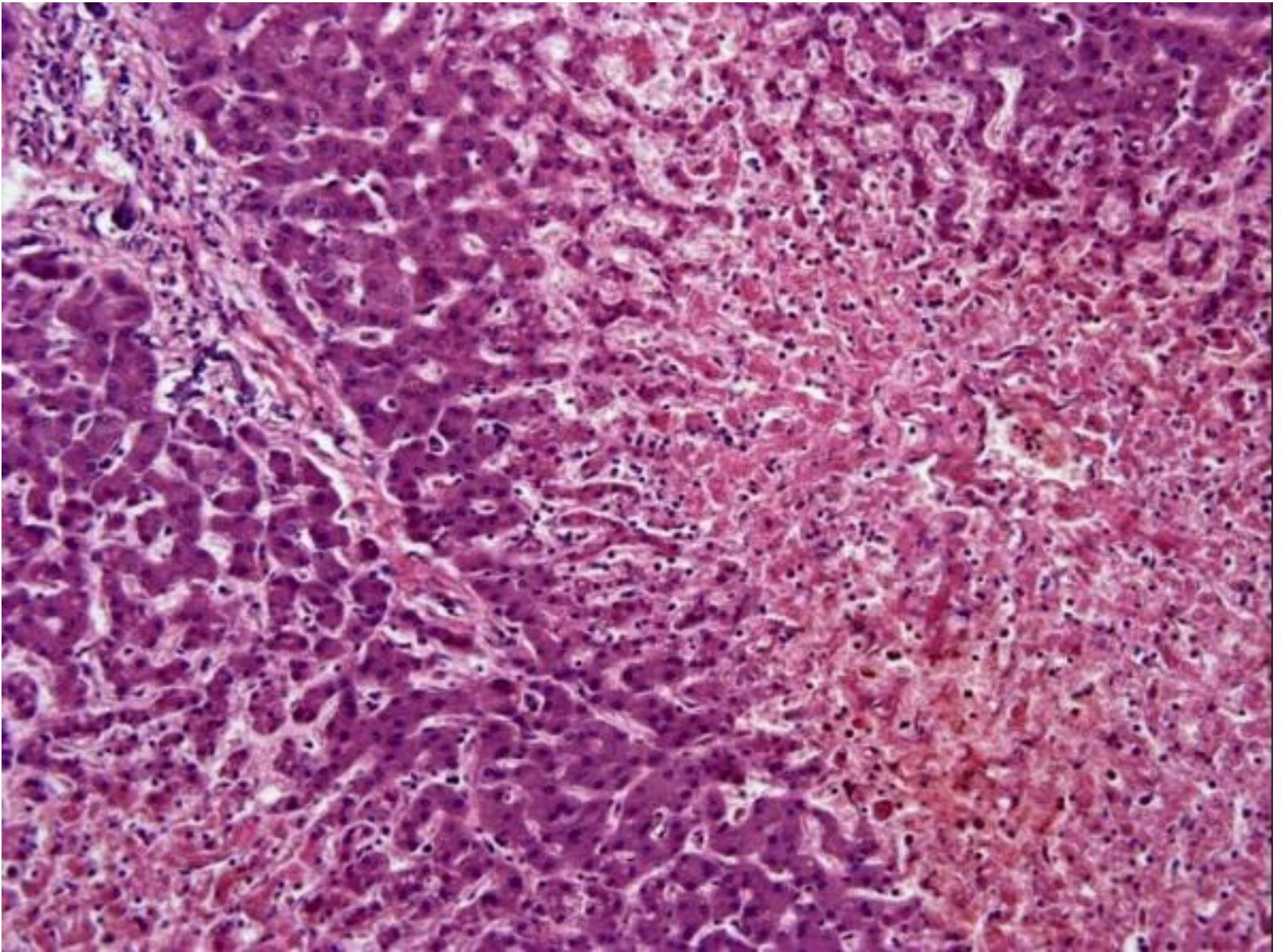
- Regulär
 - Vergrößert
 - Ausgefranst
 - Ahornblatt
 - Ballonförmig
 - Spinnenbeinförmig
-
- chron. Hepatitis
- meist obstruktiv
- NASH / ASH

Zirkulatorische Läsionen

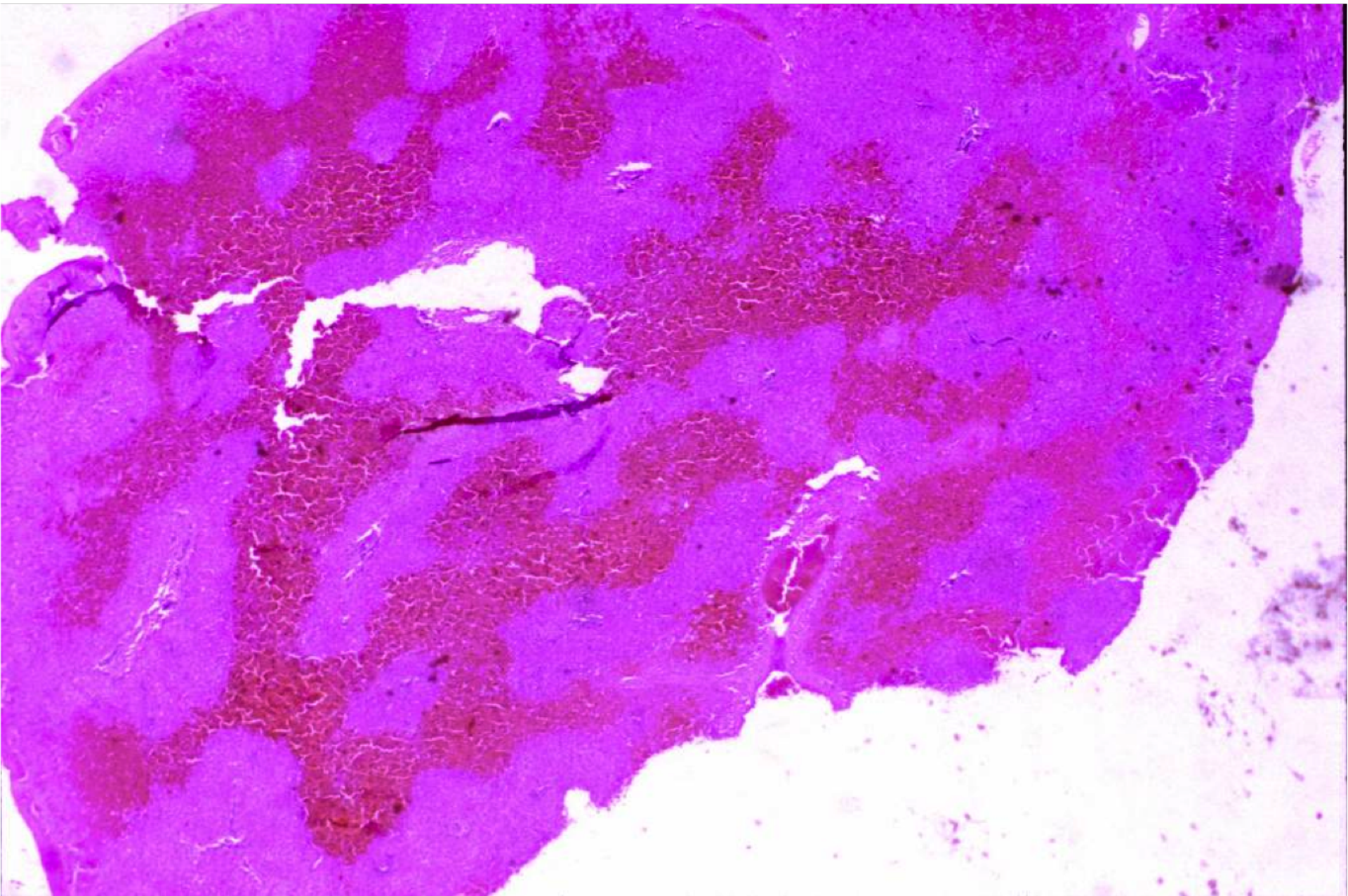
- Systemisch
 - Stauungsleber
 - Schockleber
- Intrahepatisch
 - Budd-Chiari (Lebervenenverschluss)
 - Venookklusionskrankheit (VOD)
 - Peliosis hepatis
 - Pfortaderthrombose
- Pfortaderhochdruck



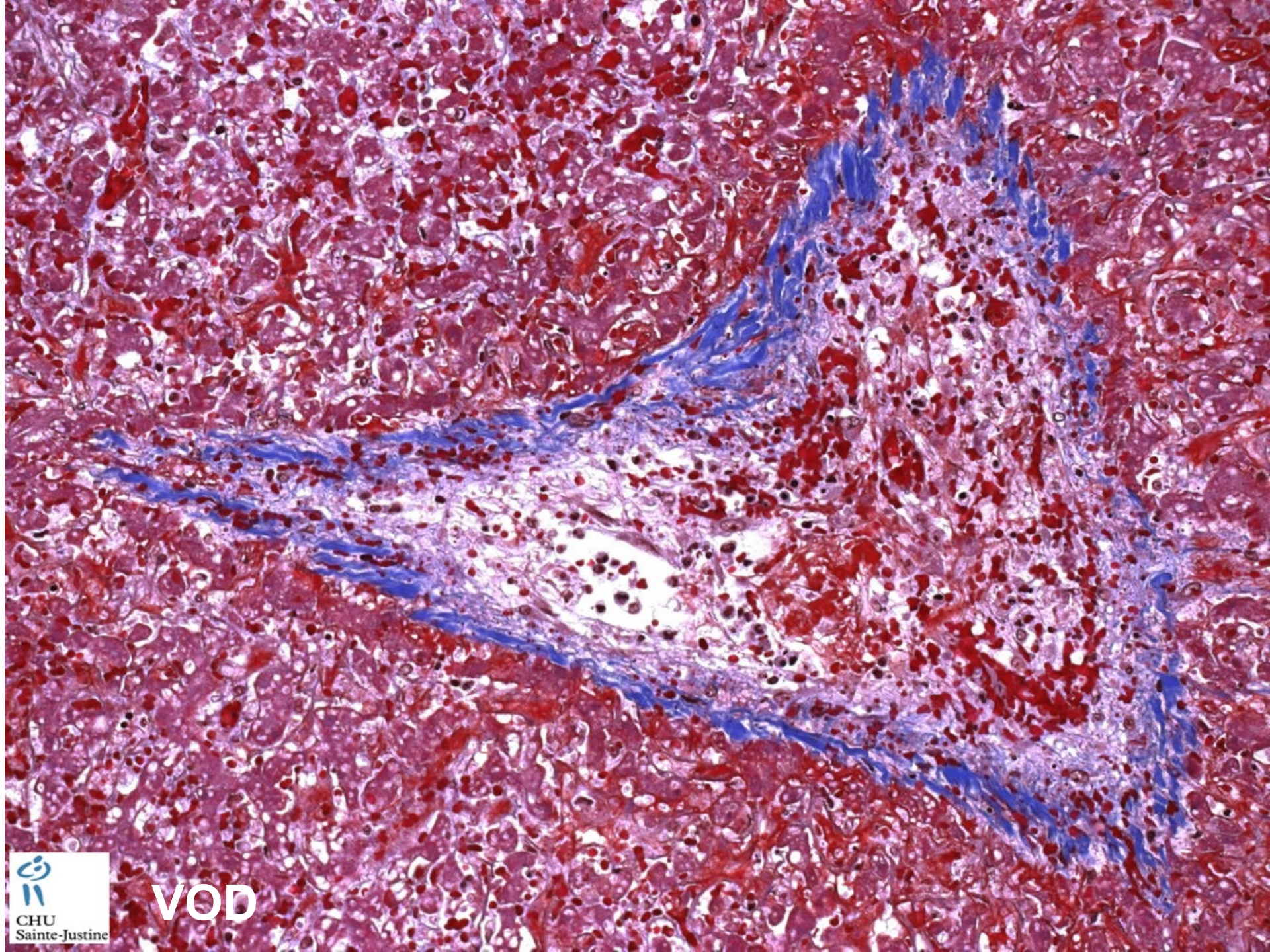
Stauungsleber



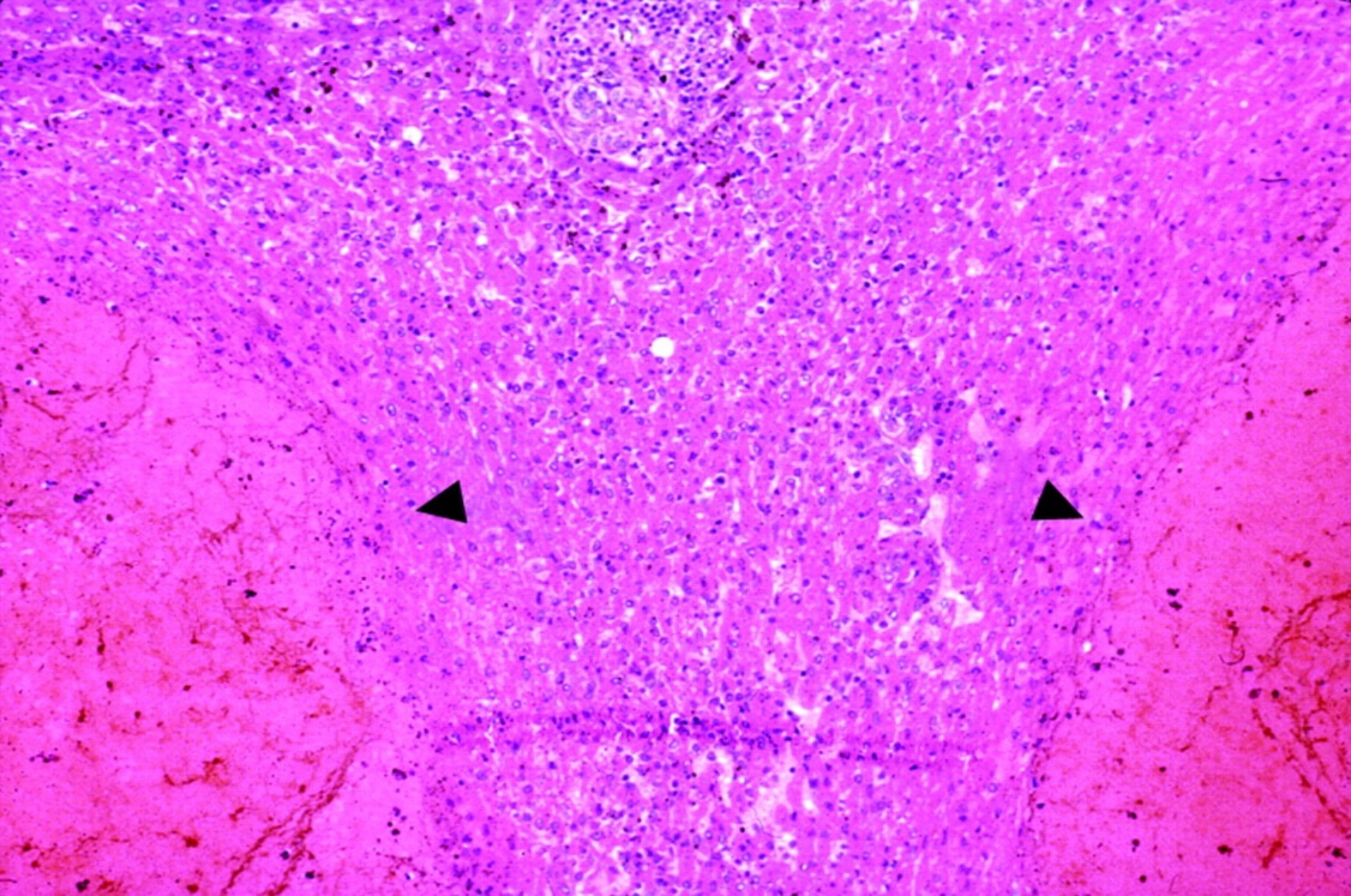
Stauungsleber



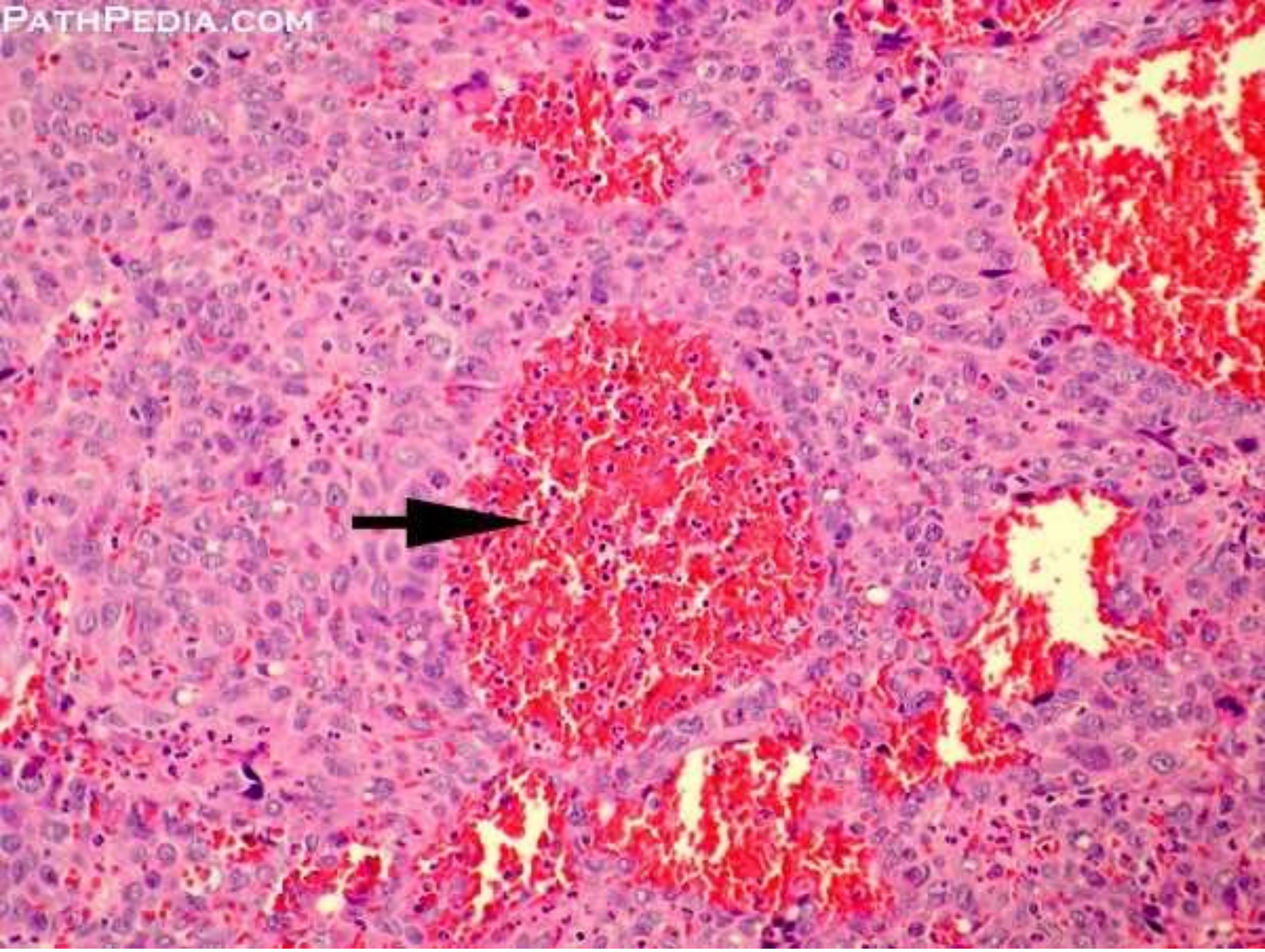
Budd-Chiari

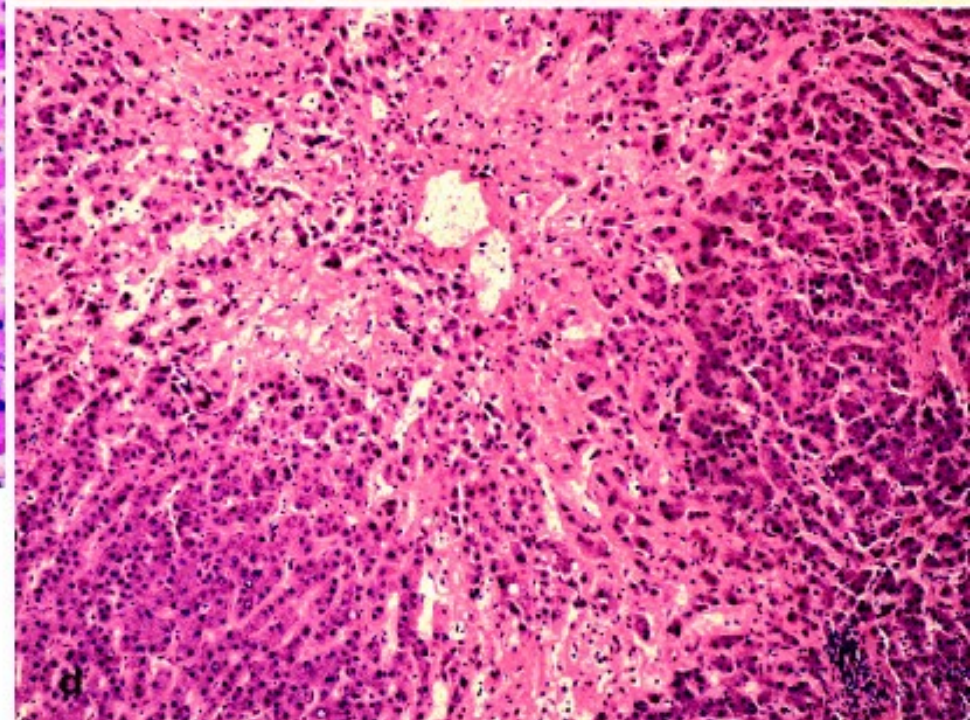
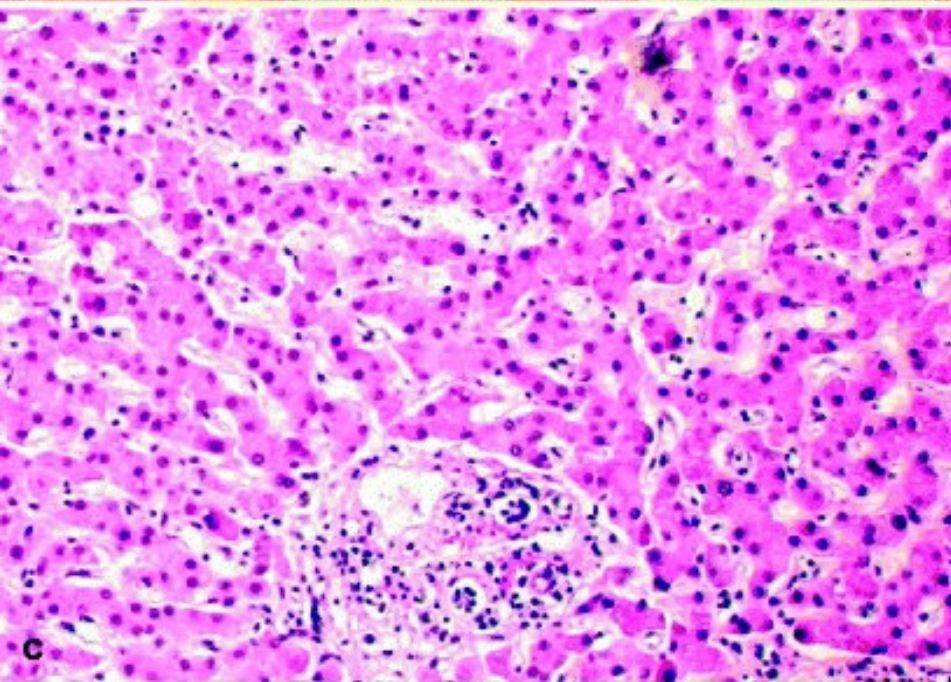
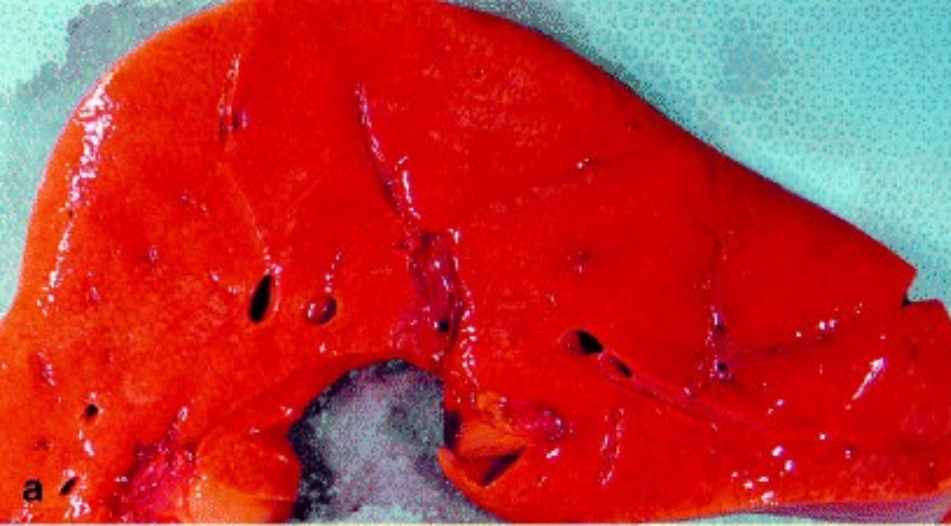


VOD



Peliosis hepatis





Schockleber

Ende Teil 1