

El patólogo veterinario en proyectos de investigación biomédica



José A. García de Jalón

UNIVERSIDAD DE
ZARAGOZA

Grupos multidisciplinarios de investigación biomédica

Utilización de animales de experimentación



Necesidad de estudios anatomopatológicos



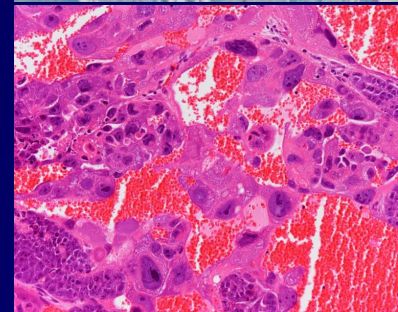
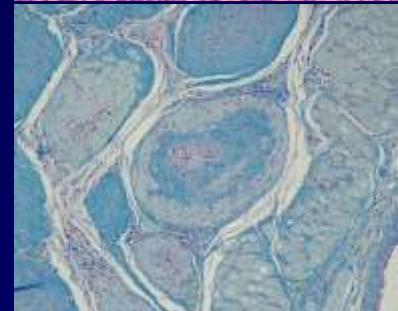
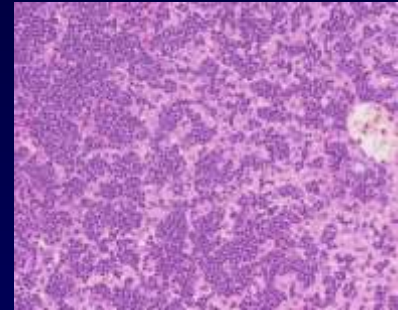
Se incrementa la demanda de patólogos



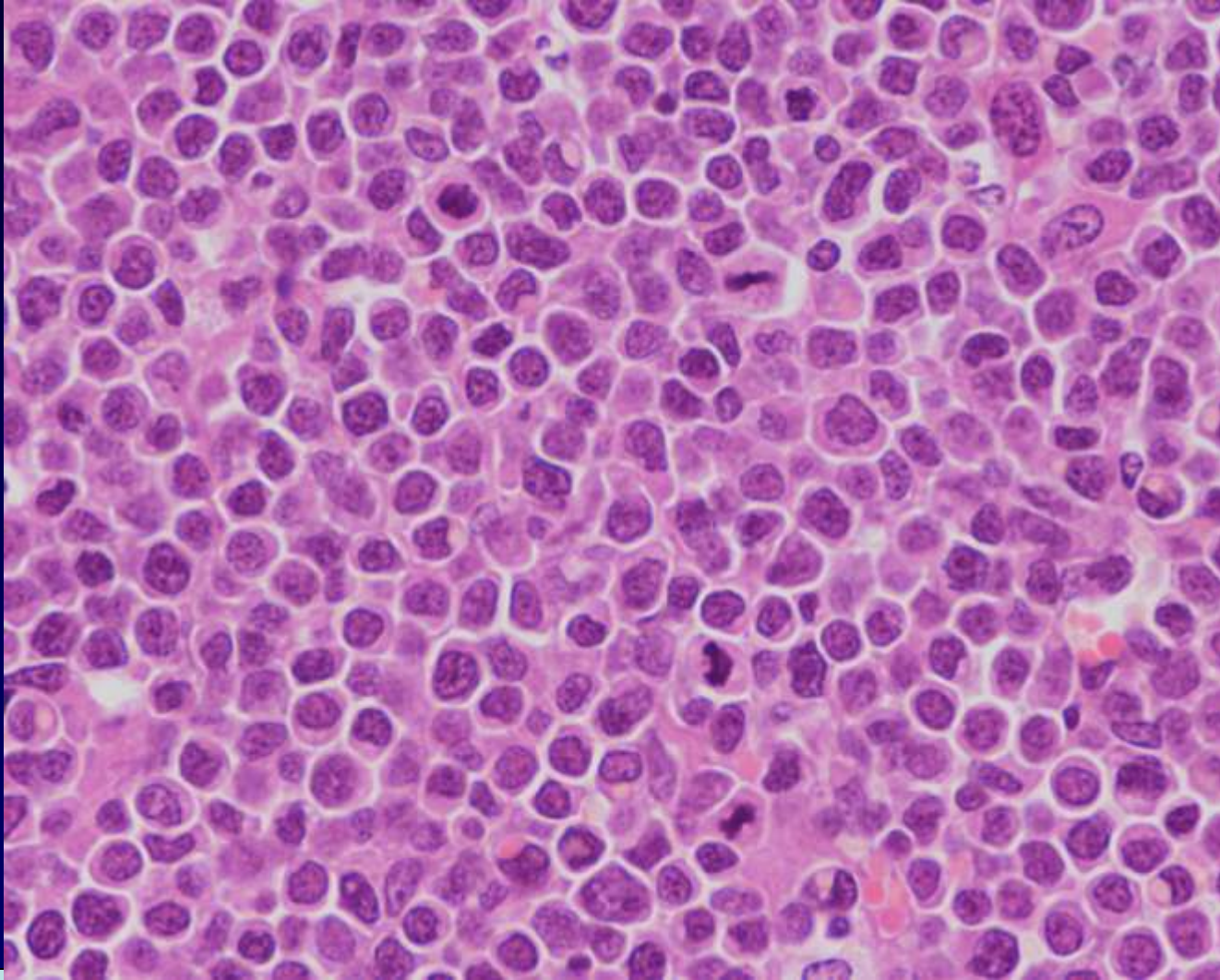
Colaboración del anatomopatólogo con grupos de investigación biomédica que utilizan animales de experimentación

- **Dr. Felipe Prosper Cardoso (Área Terapia Celular) Clínica Universitaria de Navarra**

- **Leucemias agudas linfoblásticas humanas implantadas en ratón**
- **Implante de células en infartos de miocardio experimentales en cerdo**
- **Desarrollo y selección de células madre adultas reprogramadas (iPS) en ratón**

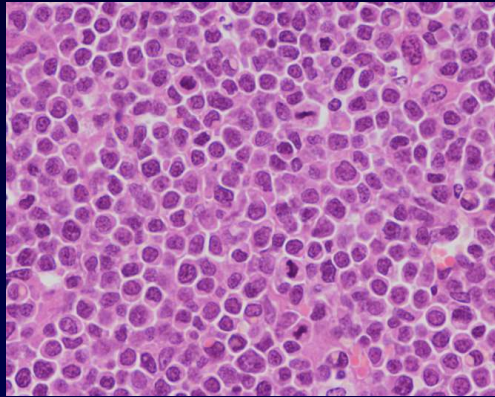


Actividad antitumoral de LBH589 en leucemia linfoblástica aguda B y T humanas implantadas en ratones



Preclinical activity of LBH589 alone or in combination with chemotherapy in a xenogeneic mouse of human lymphoblastic leukemia. **CANCER RESEARCH**

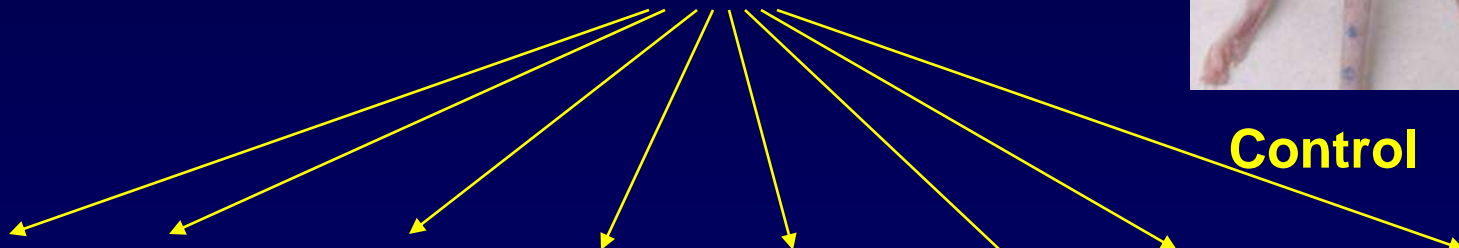
Actividad antitumoral de LBH589 en leucemia linfoblástica aguda B y T humanas implantadas en ratones



BALB/cA-Rag2^{-/-}gc^{-/-}

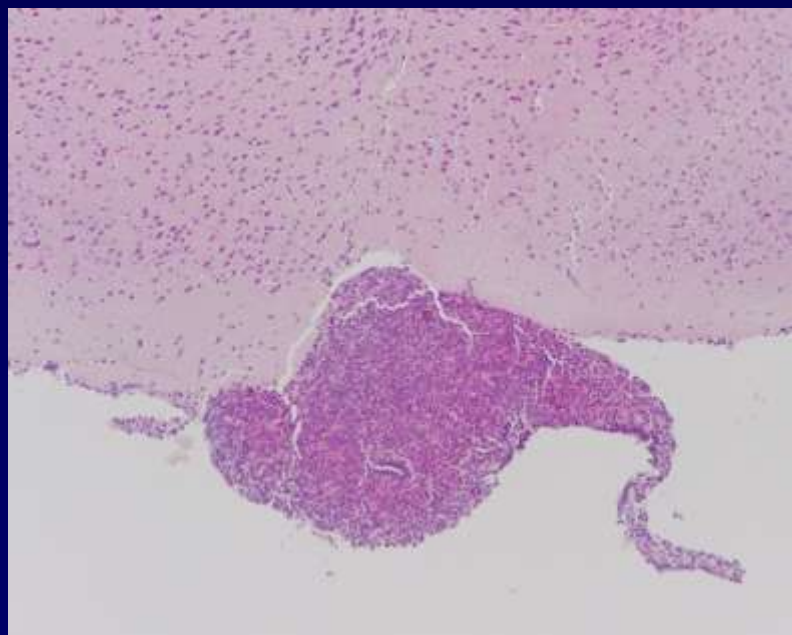
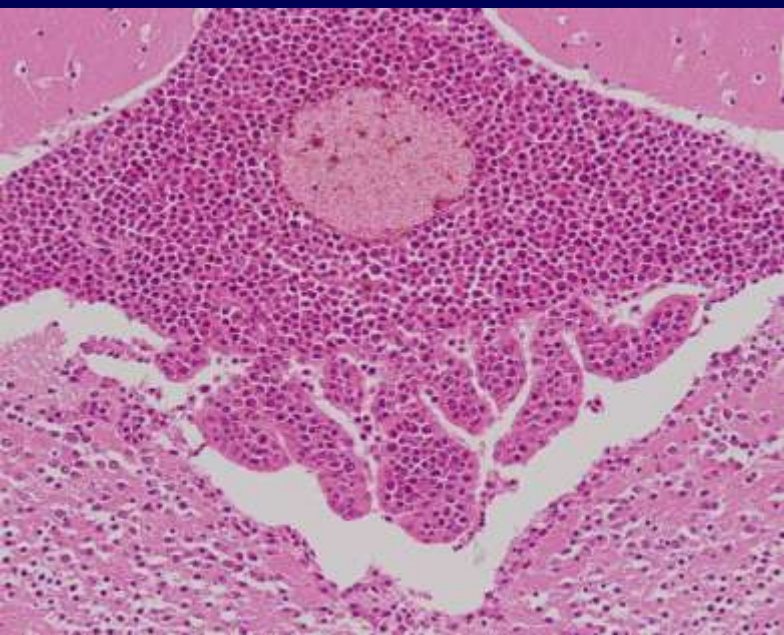
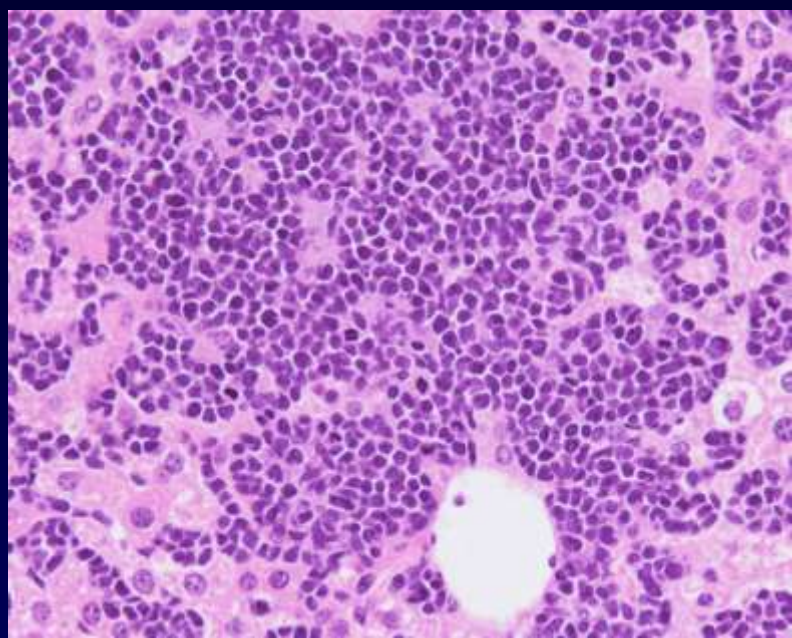
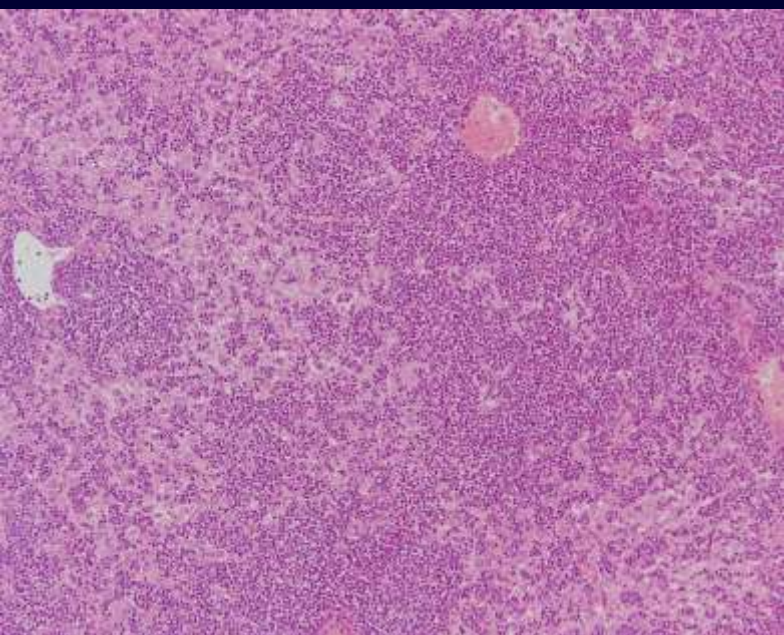


Control Tratado

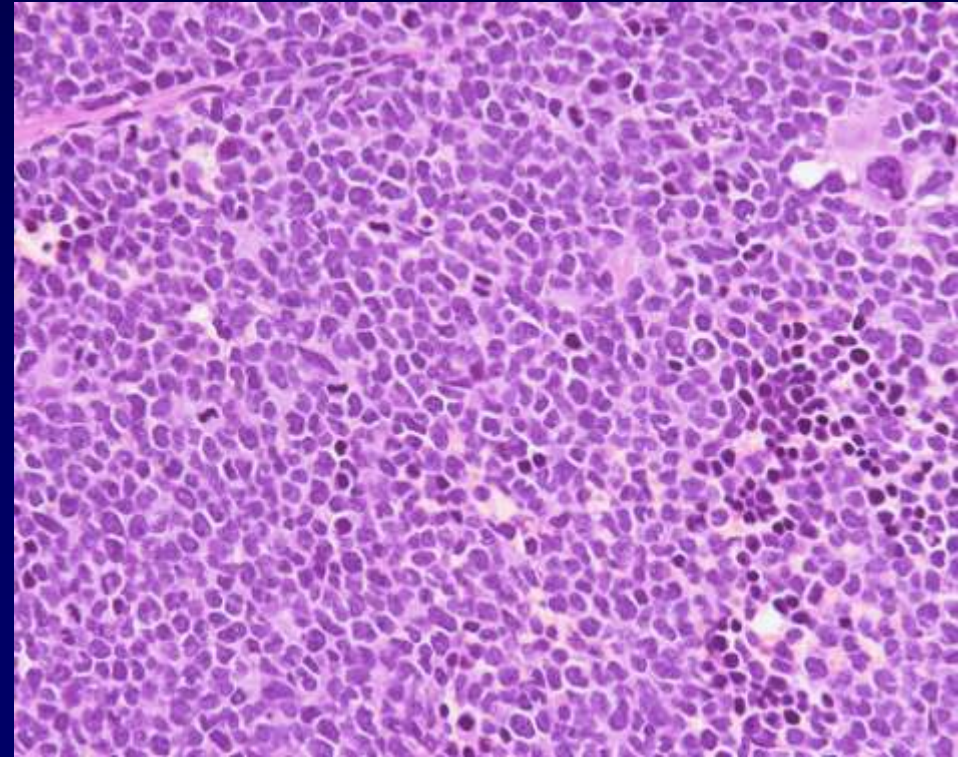
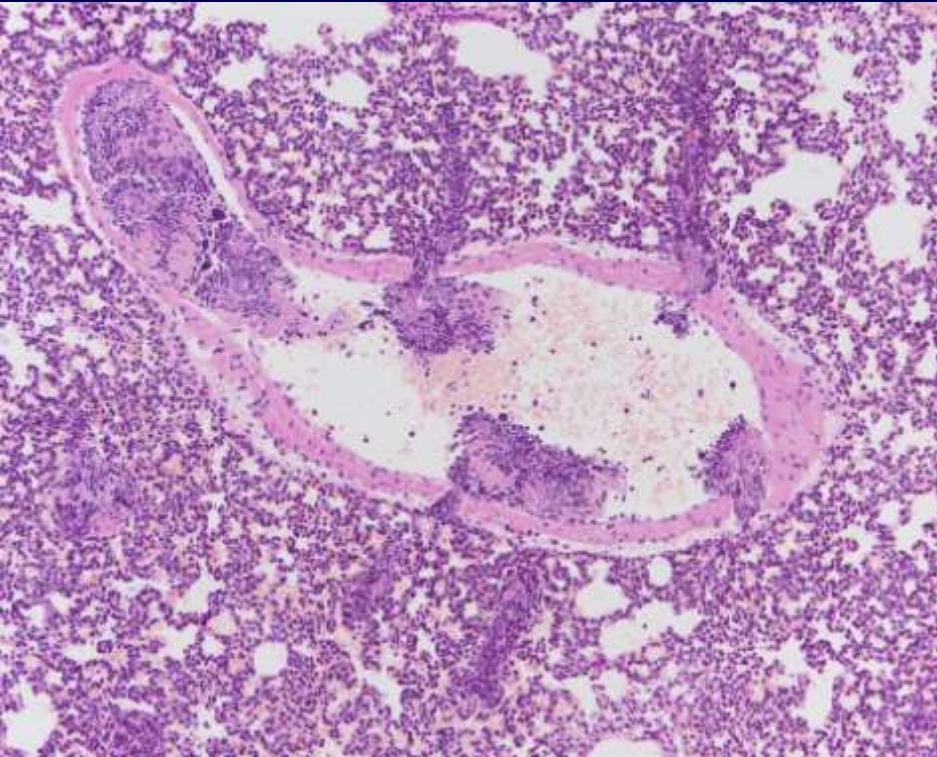


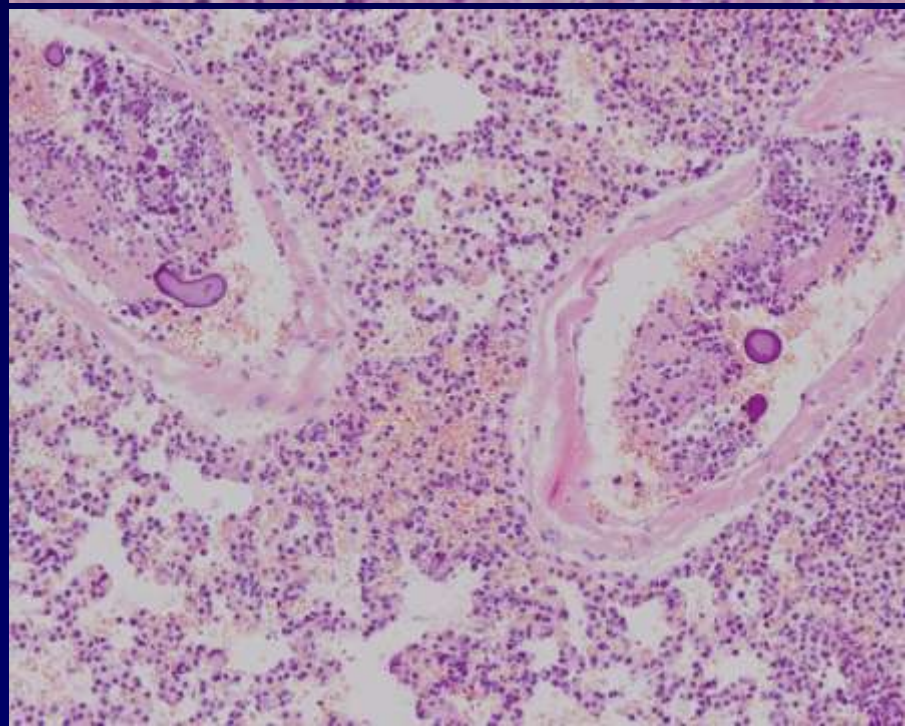
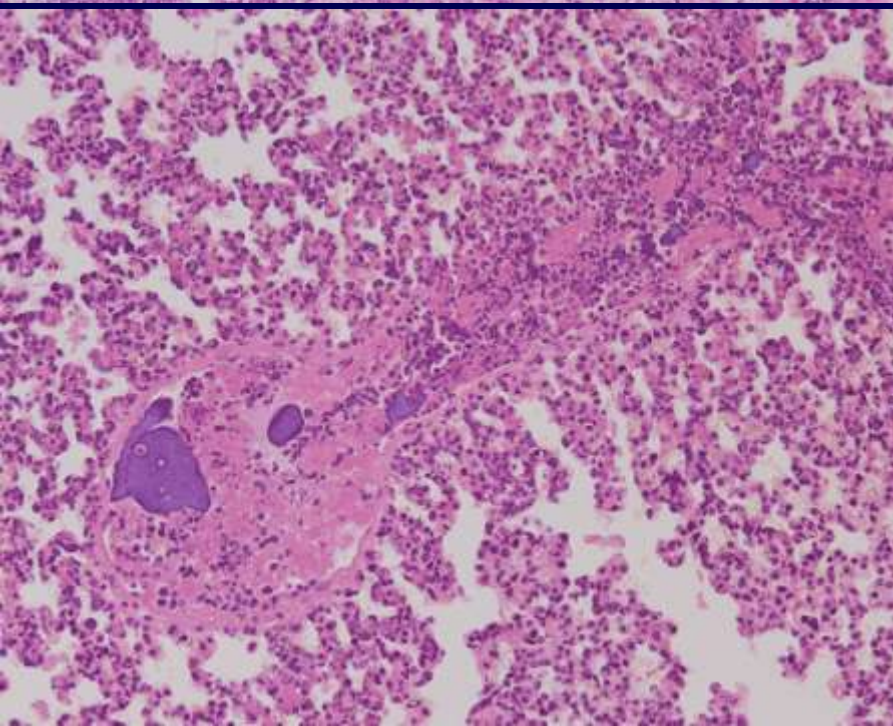
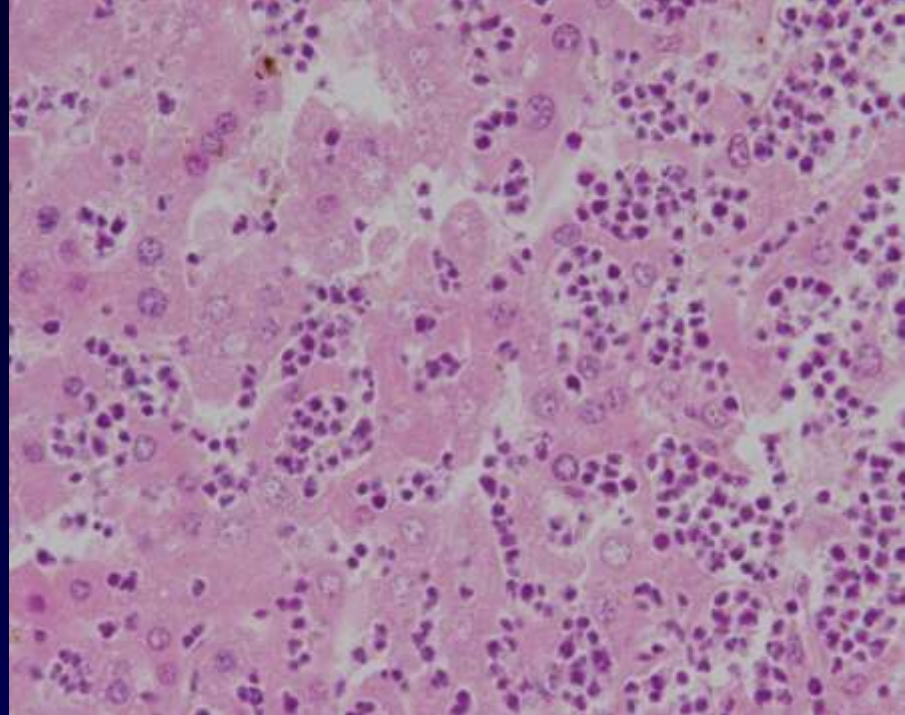
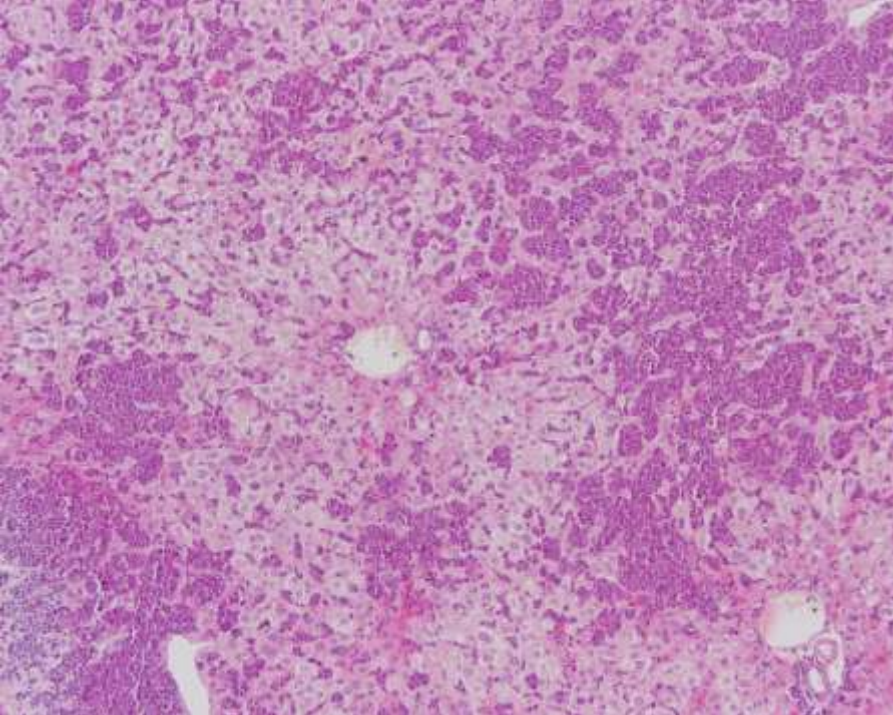
Tratamiento antitumoral con LBH589 combinado o sólo

Leucemias linfoblásticas agudas B y T humanas implantadas en ratones

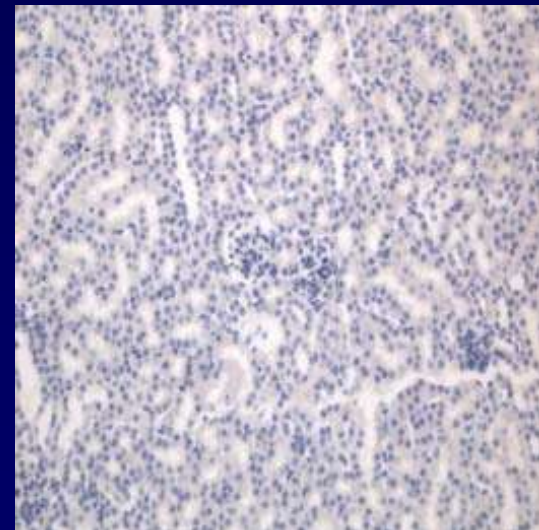
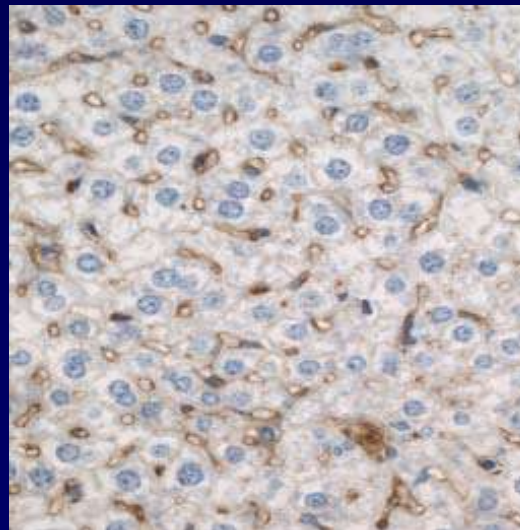
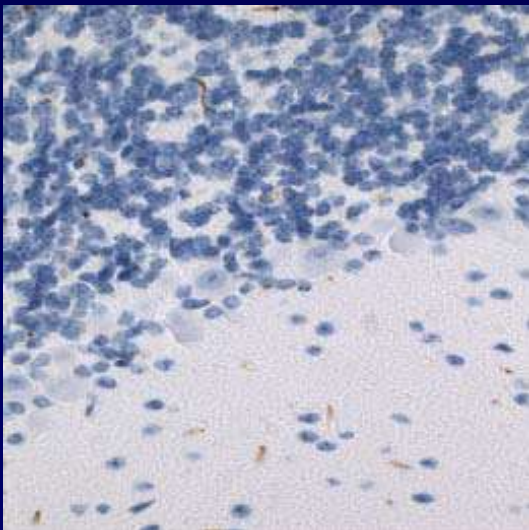
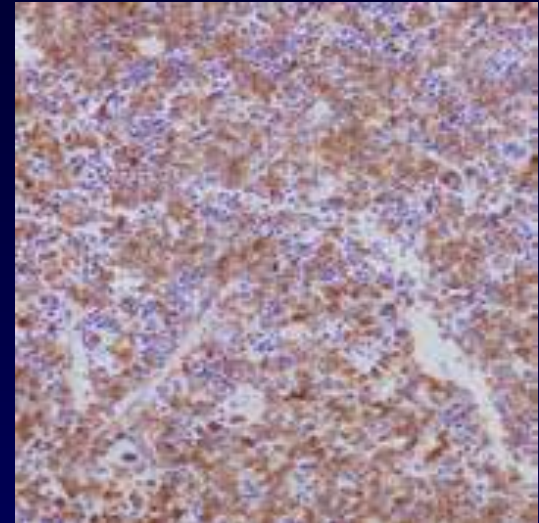
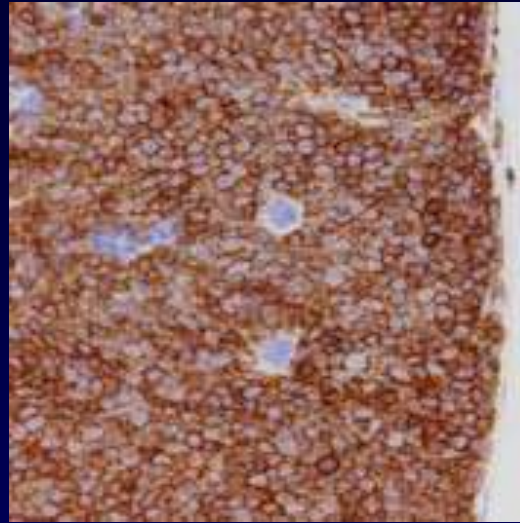
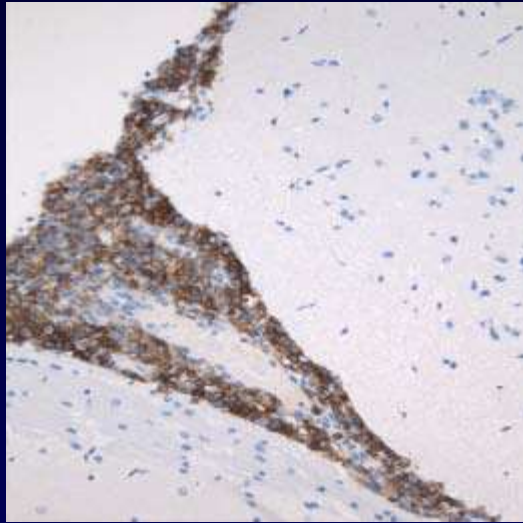


**Leucemias linfoblásticas agudas B y T humanas
implantadas en ratones se diseminan por todos los
órganos y tejidos**





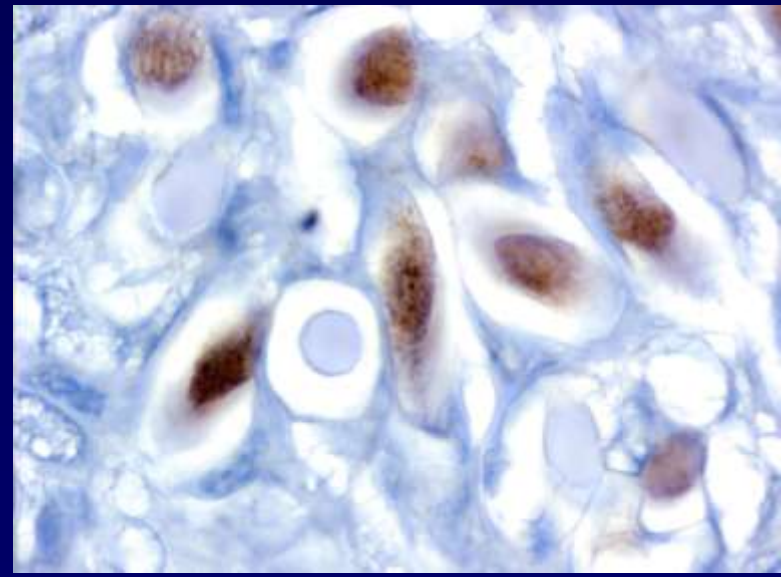
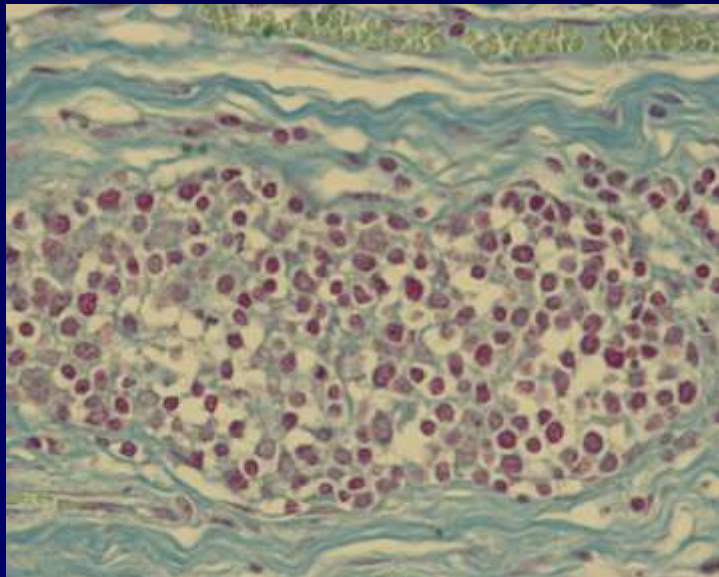
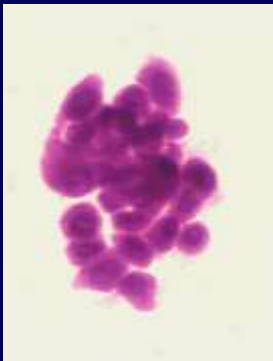
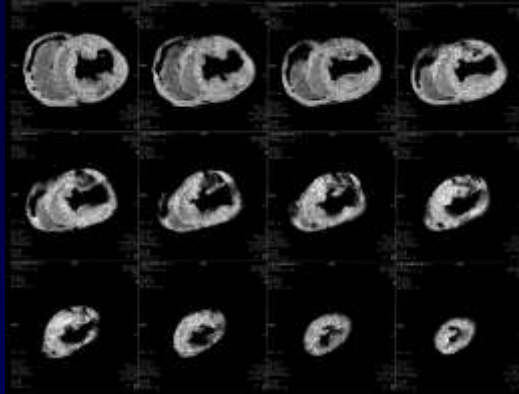
Inmunocitoquímica CD 19 y CD 45



Dr. Felipe Prosper Cardoso (Área de Terapia Celular) Clínica Universitaria de Navarra

cerdos

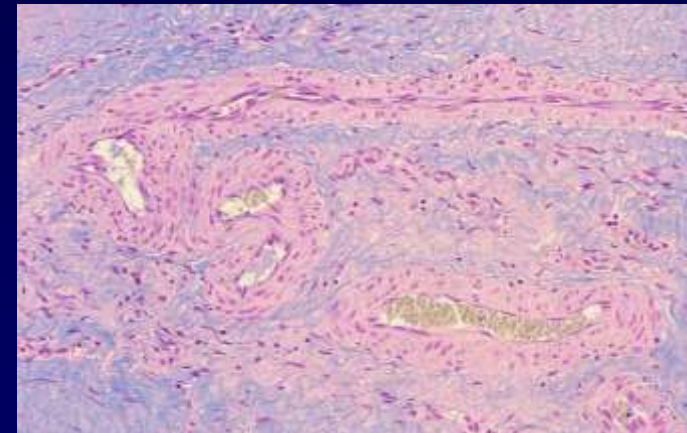
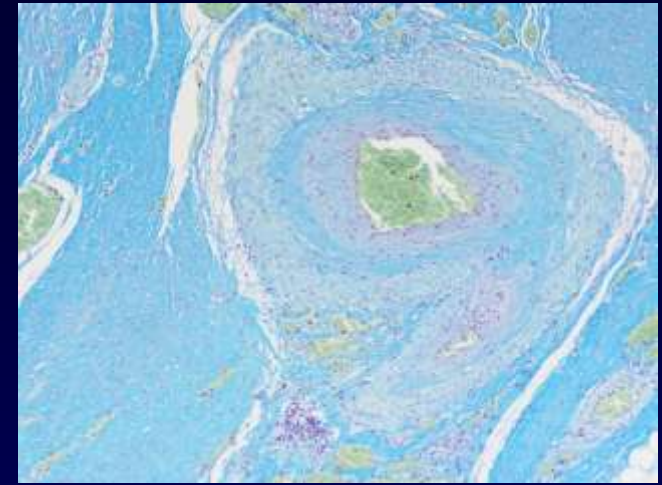
Regeneración de infartos de miocardio experimentales



IMPLANTE DE MIOBLASTOS EN INFARTOS DE MIOCARDIO



CONTROL

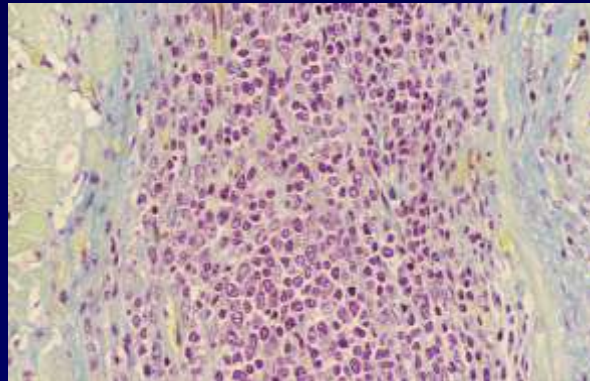
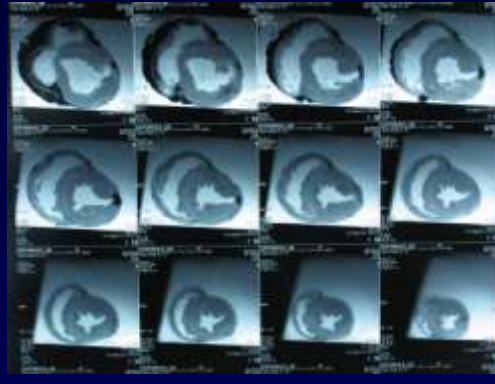


A comparison between percutaneous and surgical transplantation of autologous skeletal myoblast in a swine model of chronic myocardial infarction Cardiovascular Research 71(4): 744-753 (2006)

Transplantation of autologous skeletal myoblast in a swine model of myocardial infarction: Smooth muscle differentiation of grafted cells. Experimental Hematology 33 (7) 109, 271 Suppl. (2005)

Regeneración de infartos de miocardio

IMPLANTES MÚLTIPLES DE MIOBLASTOS ESQUELÉTICOS EN INFARTOS DE MIOCARDIO EXPERIMENTALES EN 20 CERDOS

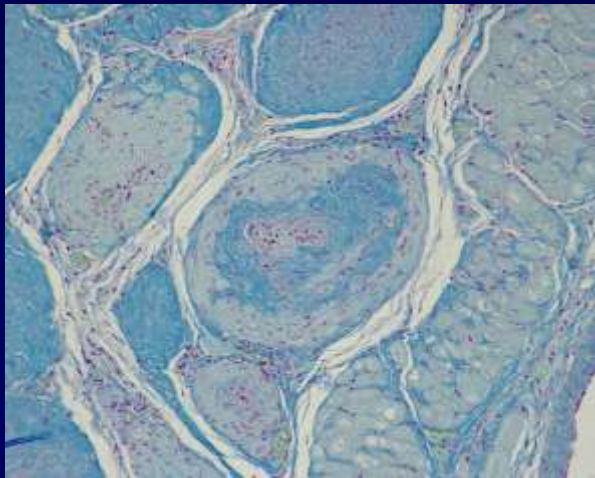
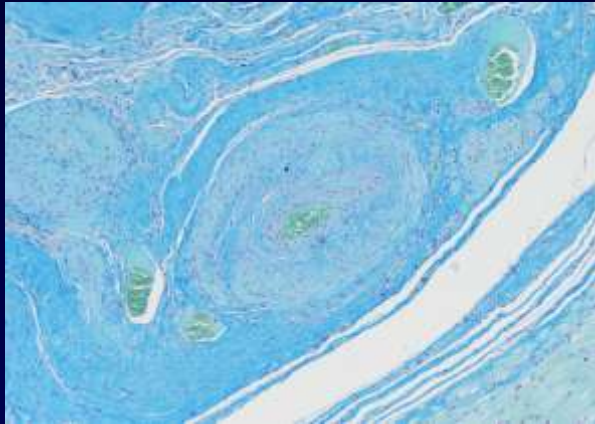


Repeated implantation of skeletal myoblast in a swine model of chronic myocardial infarction.

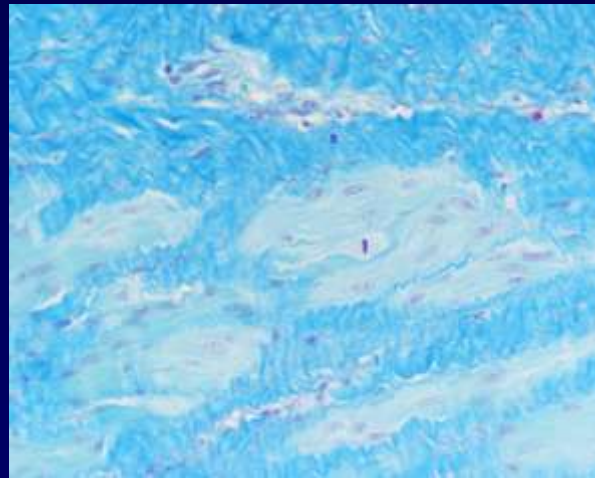
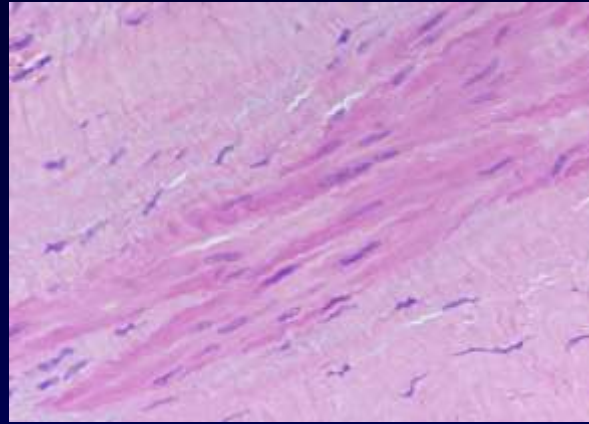
European Heart Journal 31, 1013-1021 (2010)

¿Regeneración de infartos de miocardio? NO

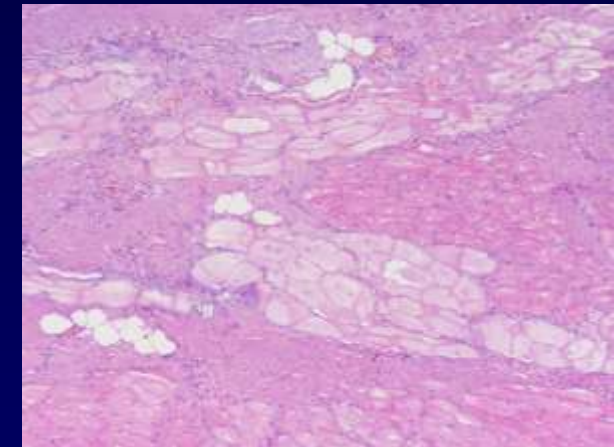
NEOVASCULARIZACIÓN



**SUPERVIVENCIA DE
CARDIOMIOCITOS**



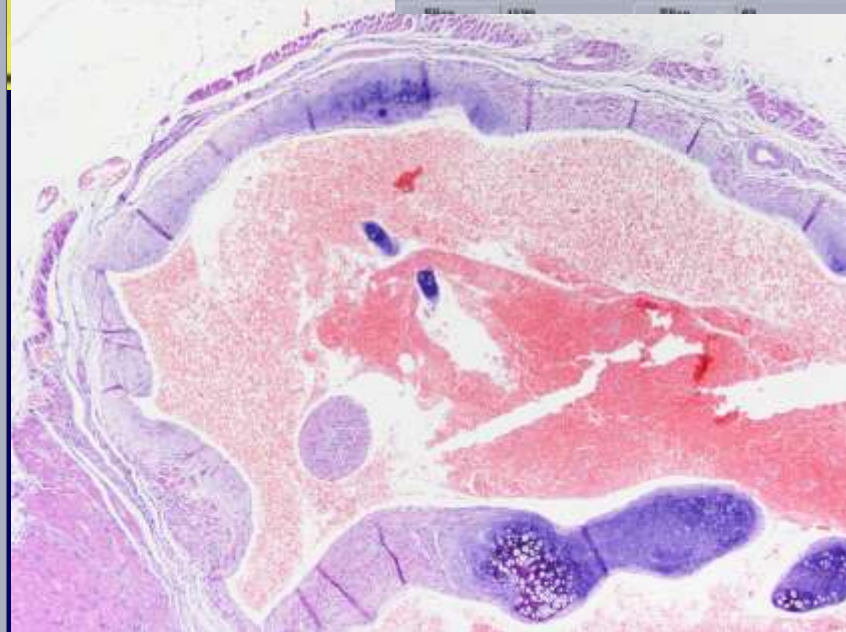
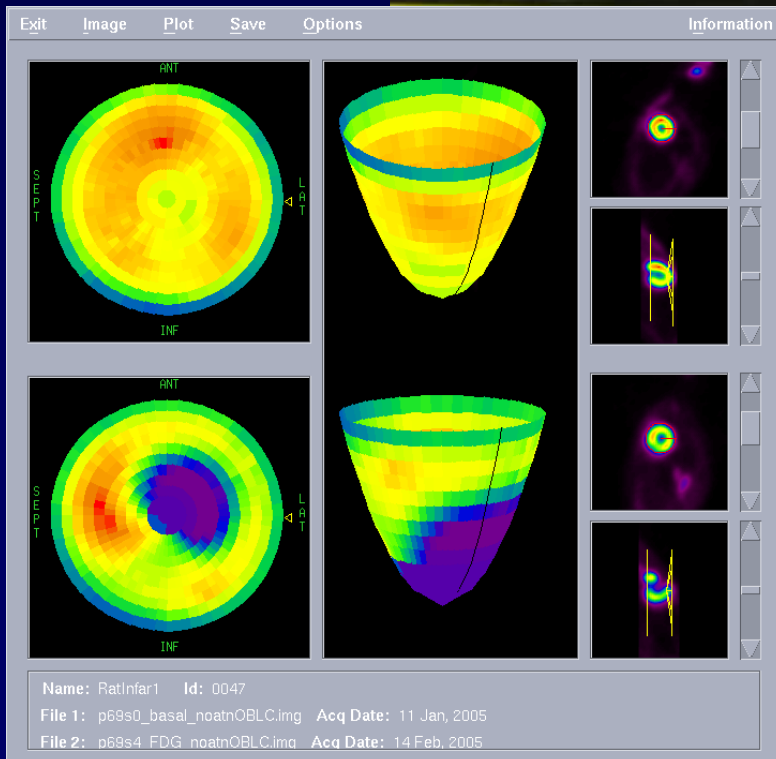
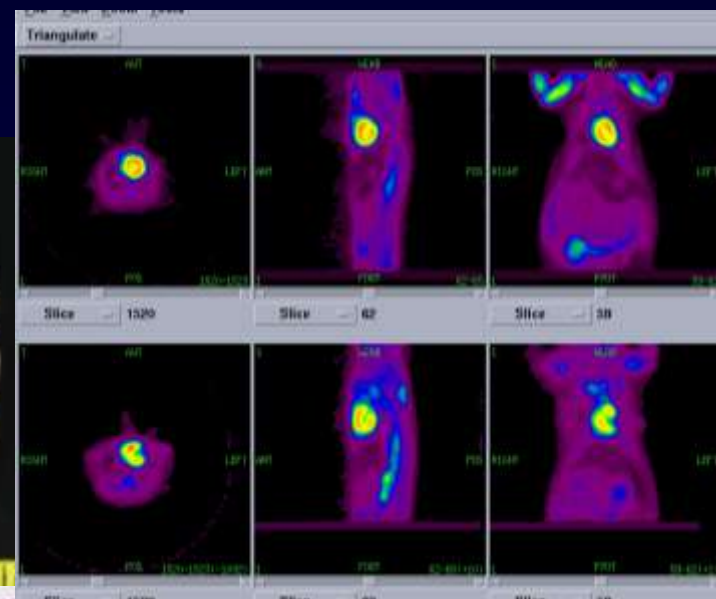
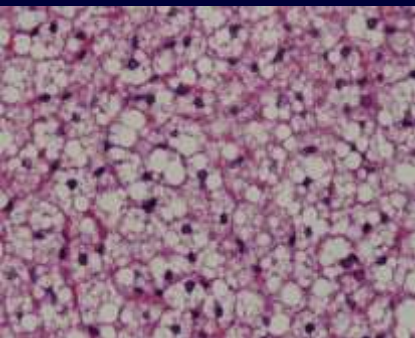
**HIPERPLASIA DE
FIBRAS DE
PURKINJE**



CONCLUSIÓN: MEJORA LA FUNCIÓN CARDIACA EN ANIMALES Y PERSONAS CON INFARTO DE MIOCARDIO

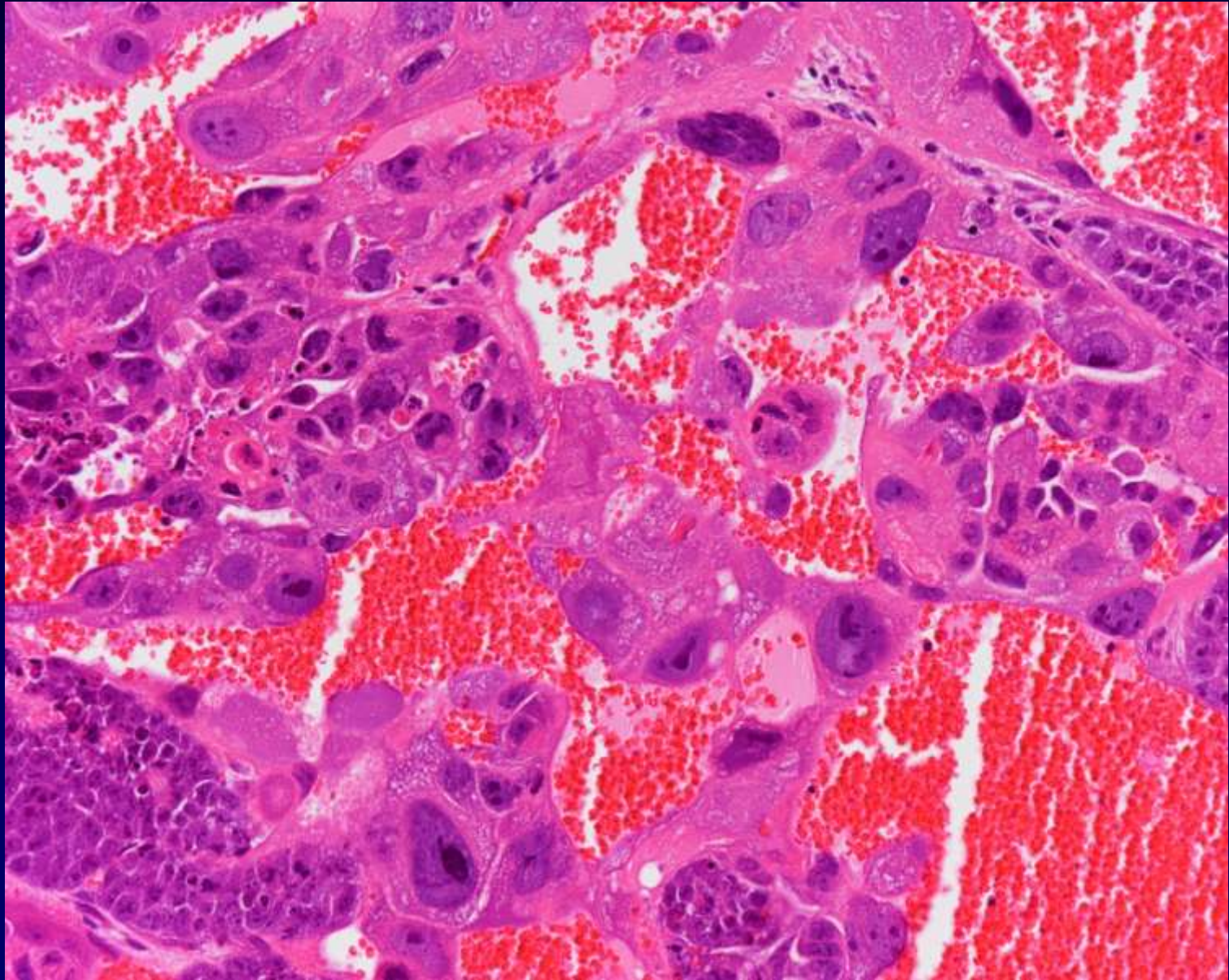
INFARTOS EXPERIMENTALES EN RATAS

Implantes de adipocitos SVF

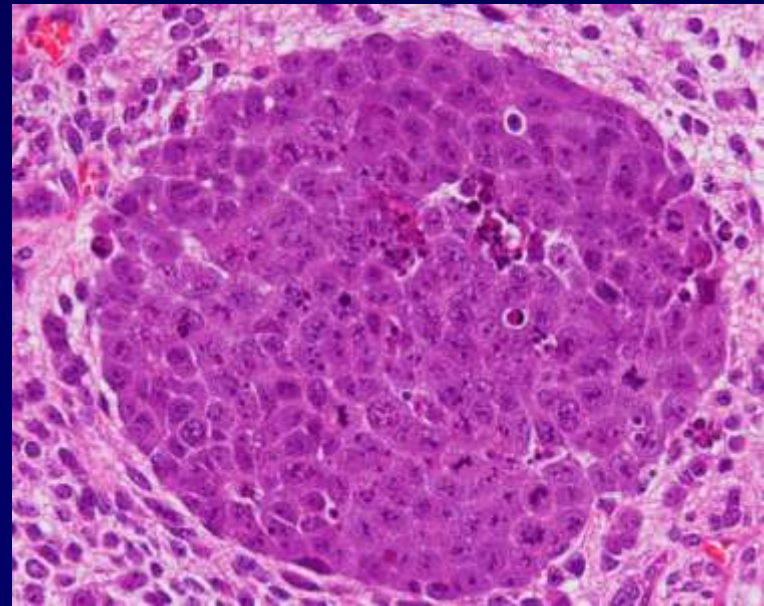
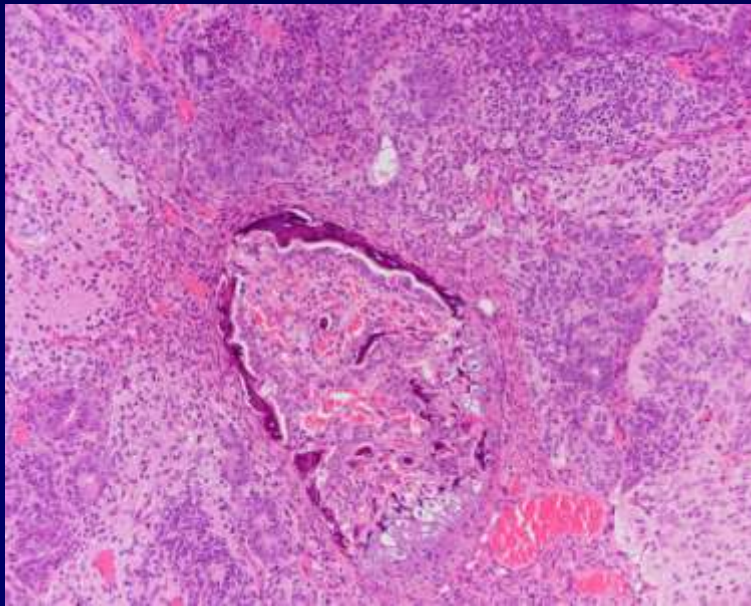
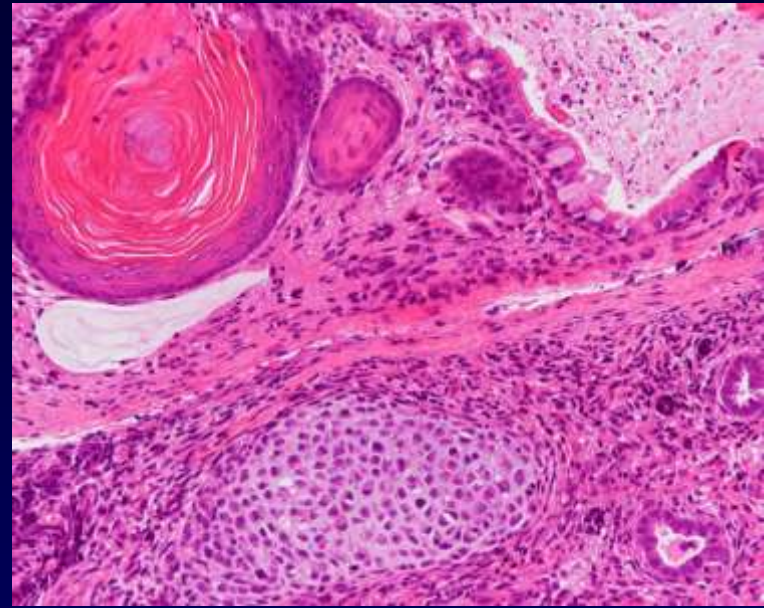
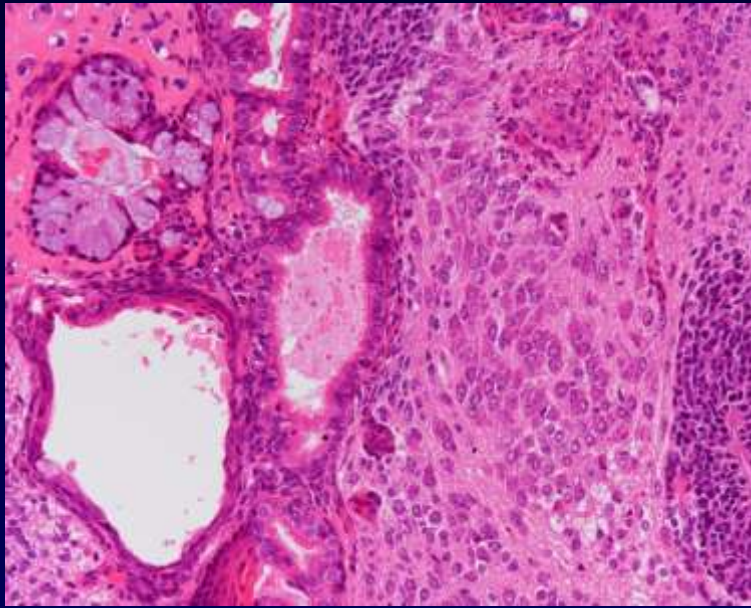


Nuklearmedizin 46(4), 149-154 (2007)

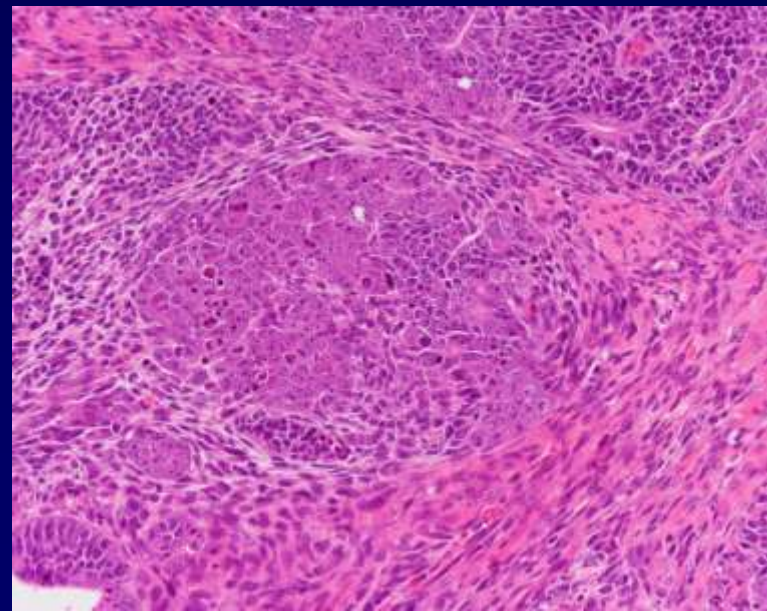
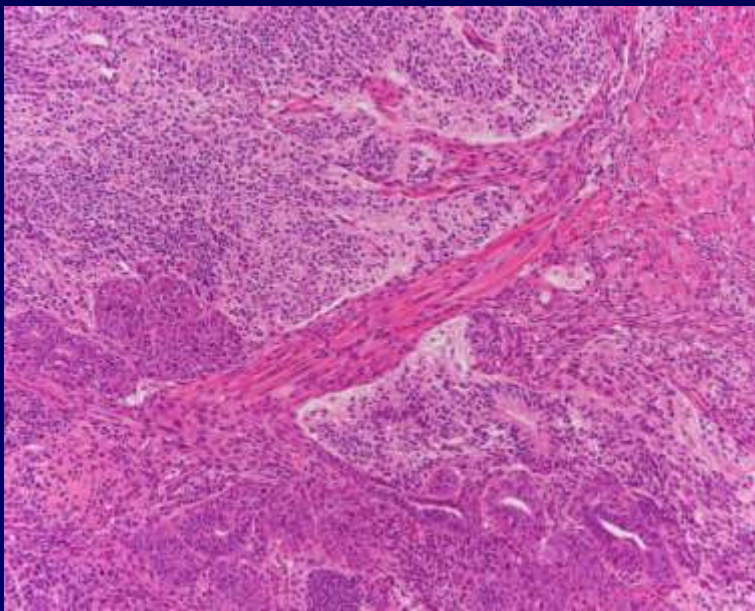
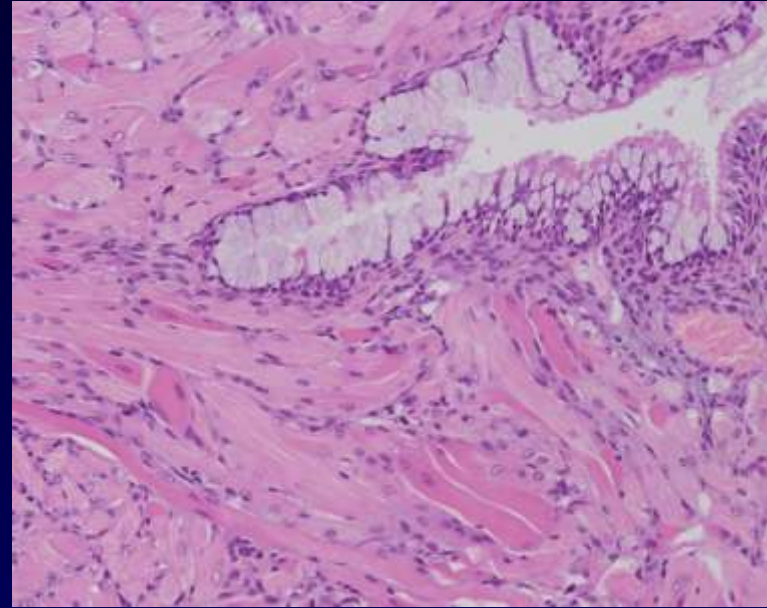
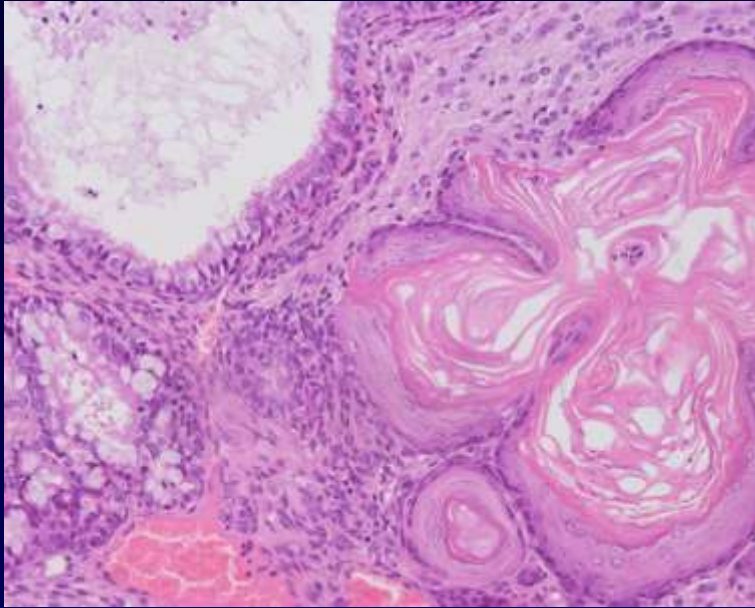
Desarrollo y selección de células madre adultas reprogramadas (iPS) en ratón



Desarrollo y selección de células madre adultas reprogramadas (iPS) en ratón: TERATOMAS



Desarrollo y selección de células madre adultas reprogramadas (iPS) en ratón: TERATOMAS

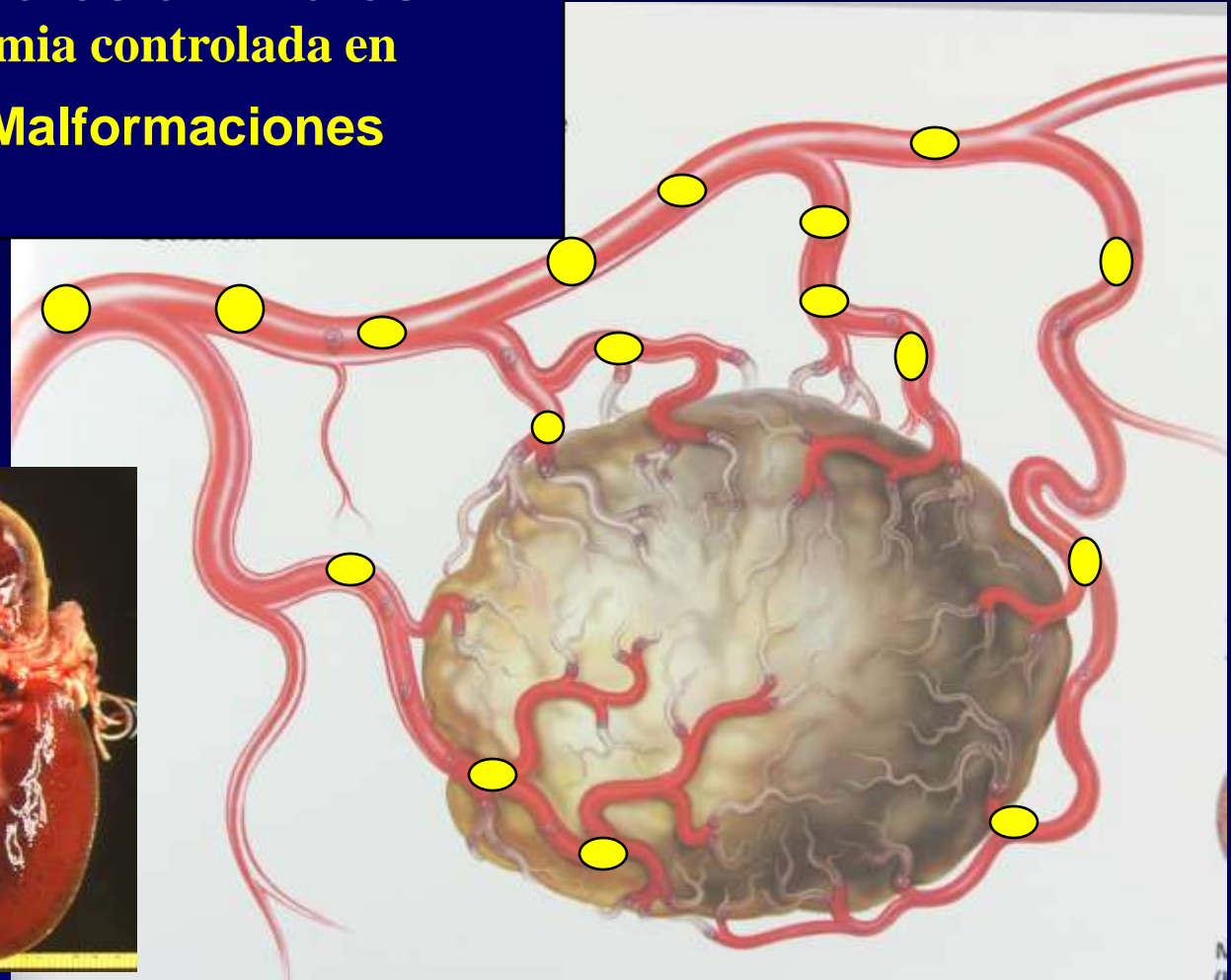


Otro ejemplo de colaboración entre anatomopatólogo veterinario con grupos de investigación biomédica

Dr. J. I. Bilbao (Dep. Radiología). CUN

Desarrollo y comportamiento Agentes embolizantes en modelos experimentales animales

OBJETIVO: Causar isquemia controlada en tumores y tratamiento de Malformaciones arteriovenosas



COMPORTAMIENTO

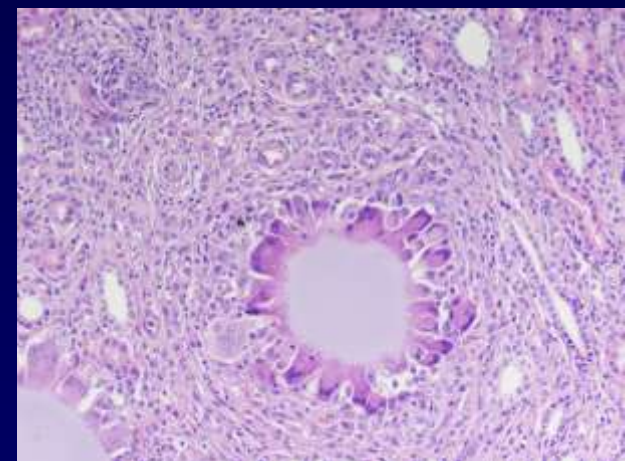
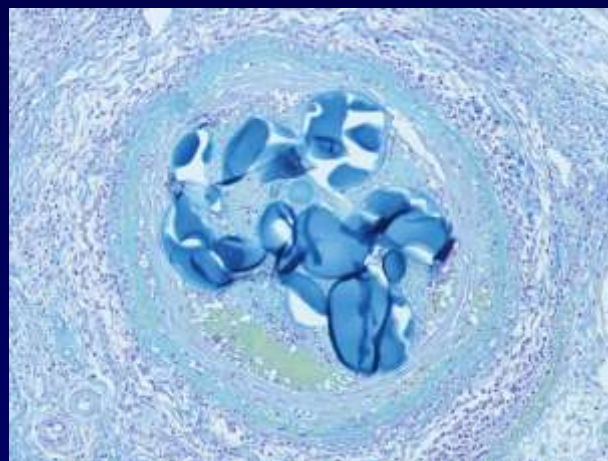
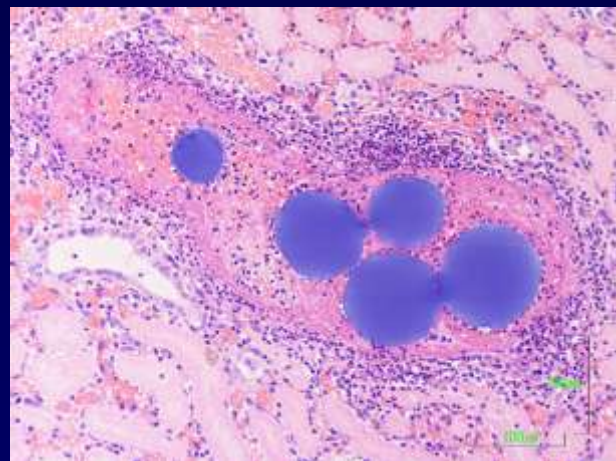
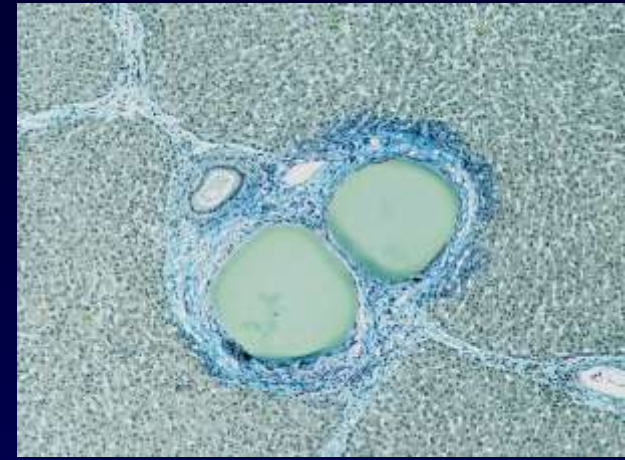
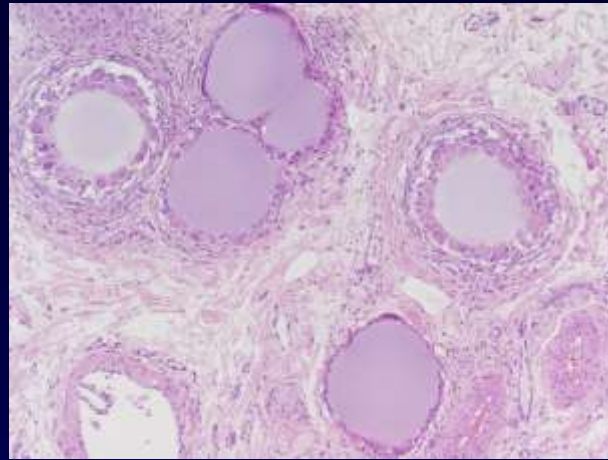
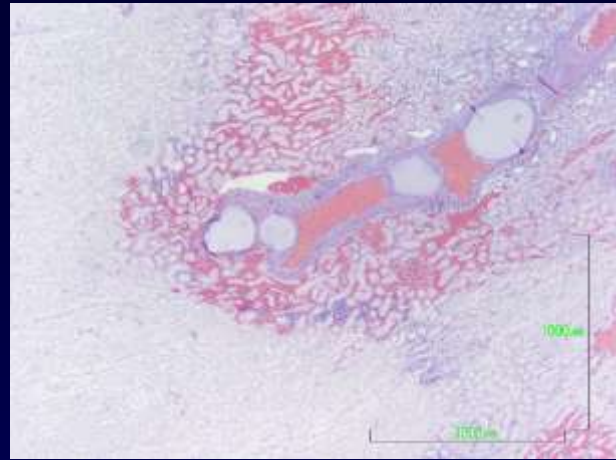
HISTOLÓGICO

Principales agentes embolizantes



| Agentes embolizantes | Composición /Características |
|----------------------|----------------------------------|
| HepaSphere™ | Copolímero-PVA/Microesfera |
| Embosphere® | Tris Acril Gelatina/Microesfera |
| Bead Block® | PVA/Microesfera |
| Contour® | PVA/Microesfera |
| Sir Spheres® | Radioesfera con isótopo Itrio 90 |
| Onyx® | Alcohol Etilen Vinílico/Fluido |

Desarrollo y comportamiento de nuevos biomateriales en Terapia Antitumoral



Cardiovascular and Interventional Radiology 27, 1: 99 (2004)

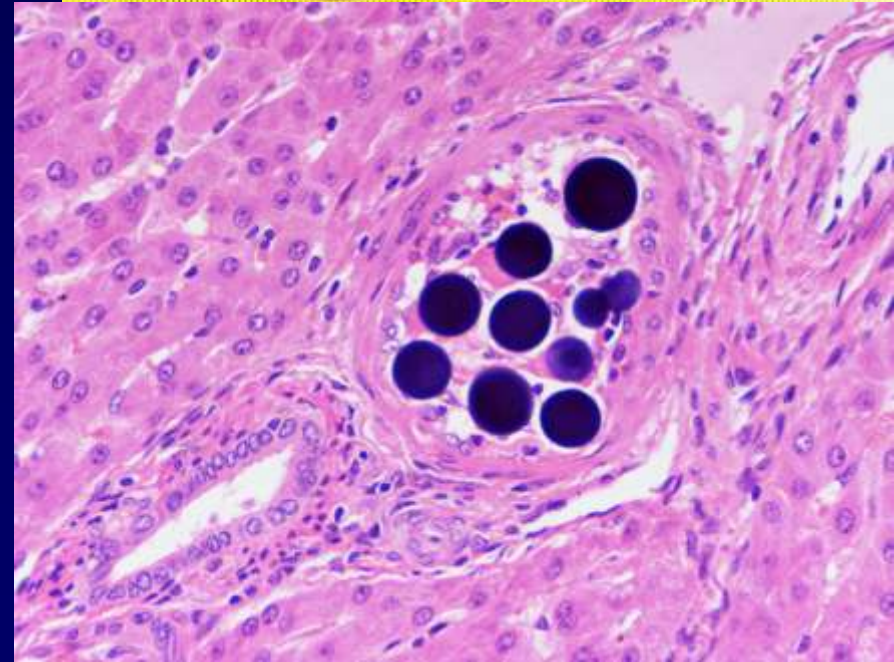
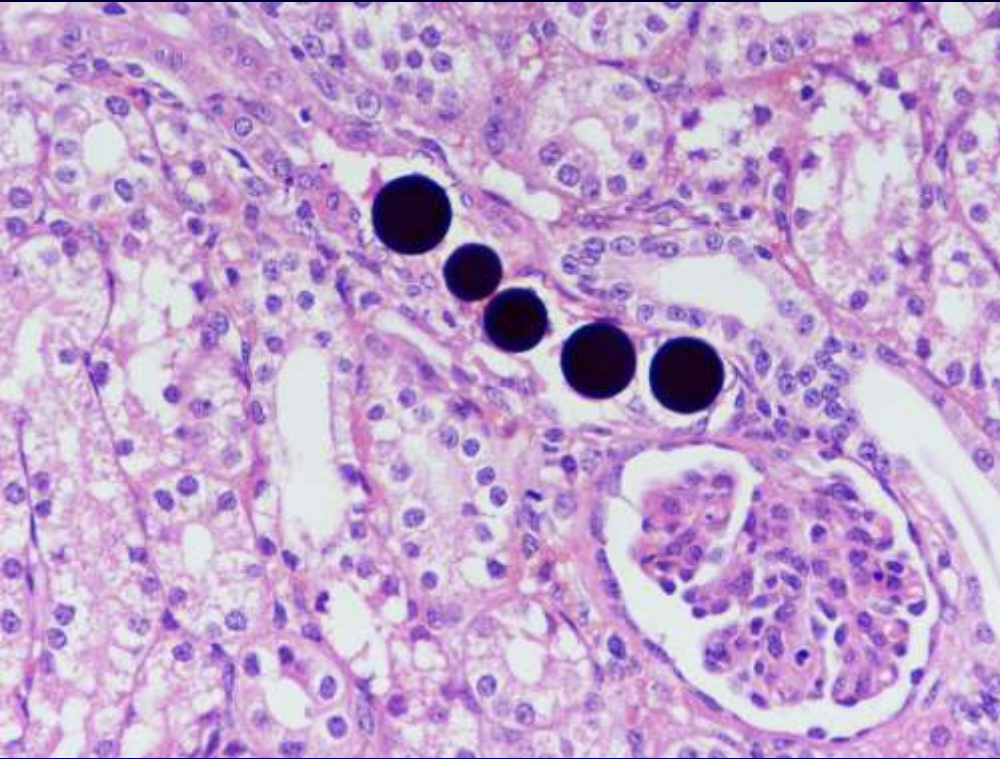
European Radiology 15, 2: 148 (2005)

Cardiovascular and Interventional Radiology 31(2), 367-376 (2008)

J Vas Interv Radiol 19 (11), 1625-1638 (2008)

Comportamiento histopatológico de la radioesfera Sir Spheres® en el modelo experimental porcino

(Portadoras del isótopo Itrio 90)



Cardiovasc Intervent Radiol 32 (4),
727- 736 (2009)

Colaboración entre anatomopatólogo veterinario con grupos de investigación biomédica

- **Dra. Adela López de Ceráin (Instituto Científico y Tecnológico de Navarra). Universidad de Navarra**
Toxicidad experimenta de ocratoxina A y Quinoxalinas
- **Dra. Ana Gloria Gil. CIFA. (Universidad de Navarra)**
Estudios toxicológicos preclínicos para el registro de medicamentos Bajo normas BPL
- **Grupo de Hepatología del CIMA y CUN de Pamplon**
Patogenicidad de vectores víricos en Terapia génica

Colaboración entre anatomopatólogo veterinario con grupos de investigación biomédica

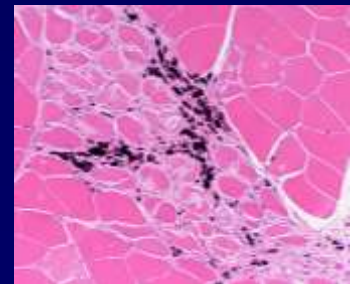
- **Digna-Biotech, S. L.**

Pruebas de tolerancia y toxicológicas de sus patentes (Interferon alfa 5, Cardiotrofina CT-1, vectores virales AAV, P144, P17)

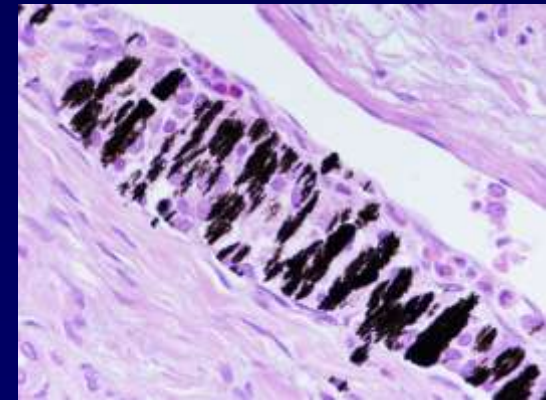
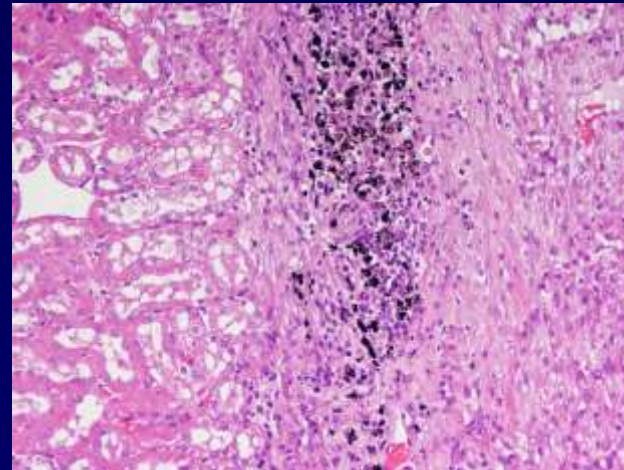
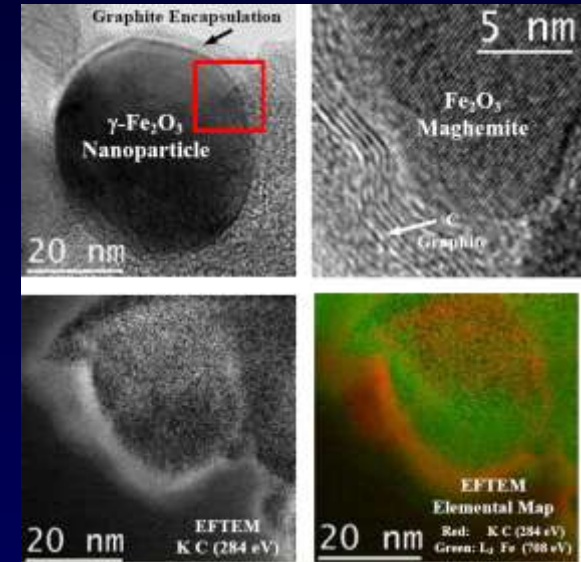
Ratas. ratones, conejos y macacos

- **Instituto de Nanociencia de Aragón (Grupo de Nanomedicina)**

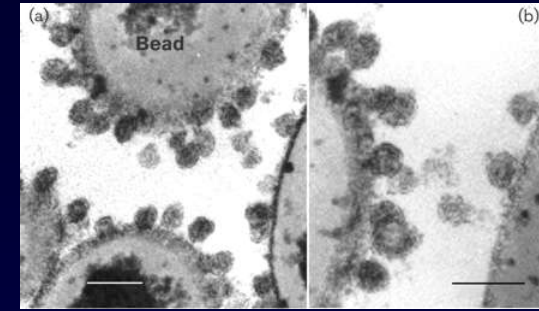
Oncoterapia inducida por Nanopartículas



ONCOTERAPIA INDUCIDA CON NANOPARTICULAS QUIMIORTADORAS HACIA IMANES INTRATUMORALES

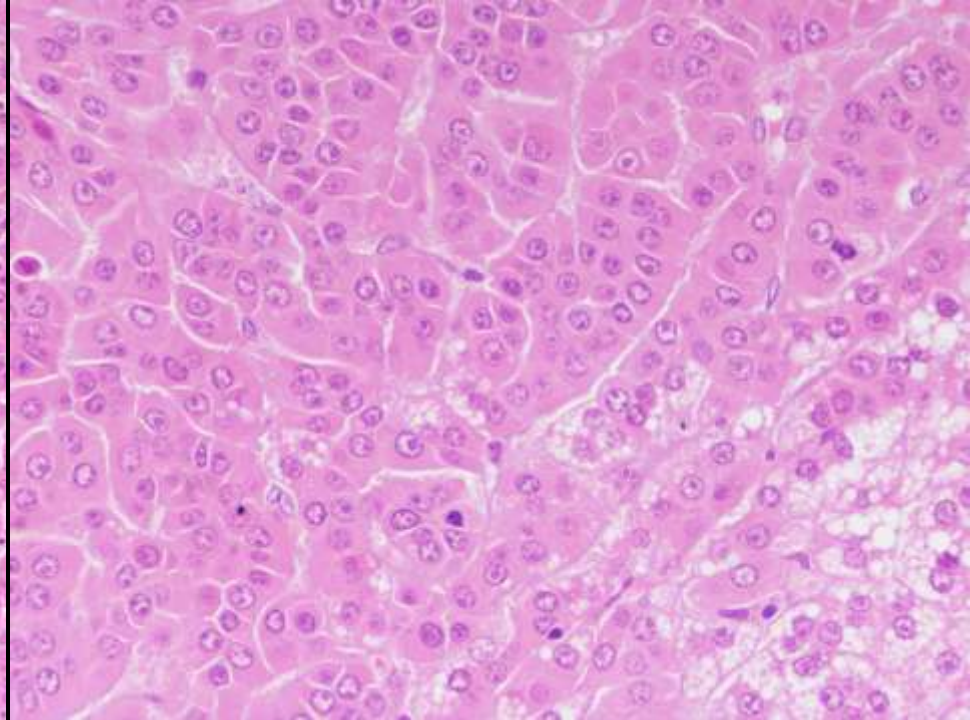
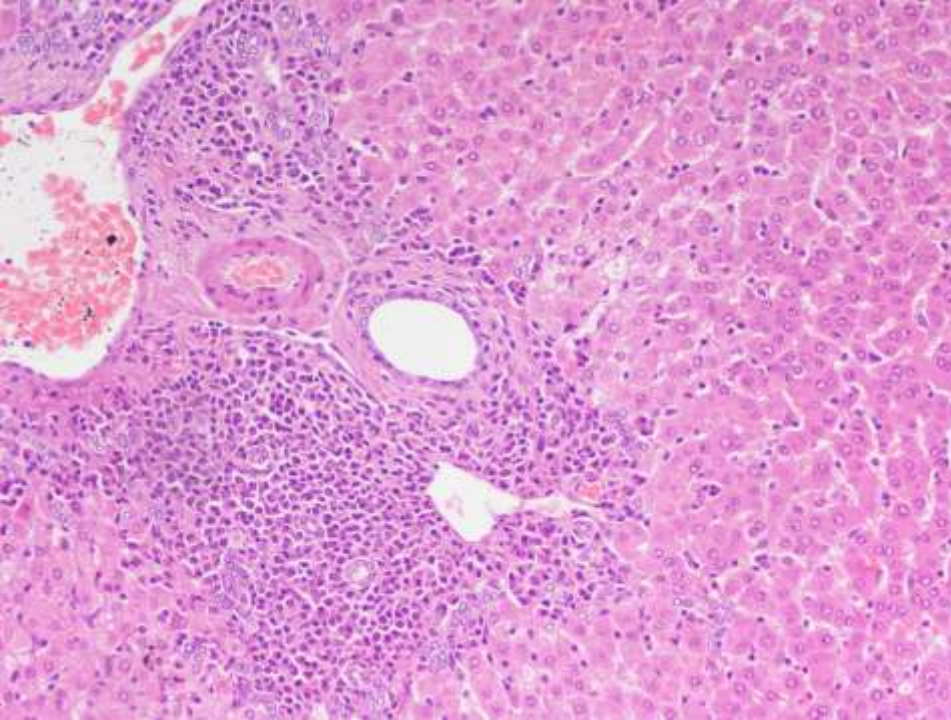


Hepatocarcinoma de Marmota como modelo experimental del Hepatocarcinoma humano

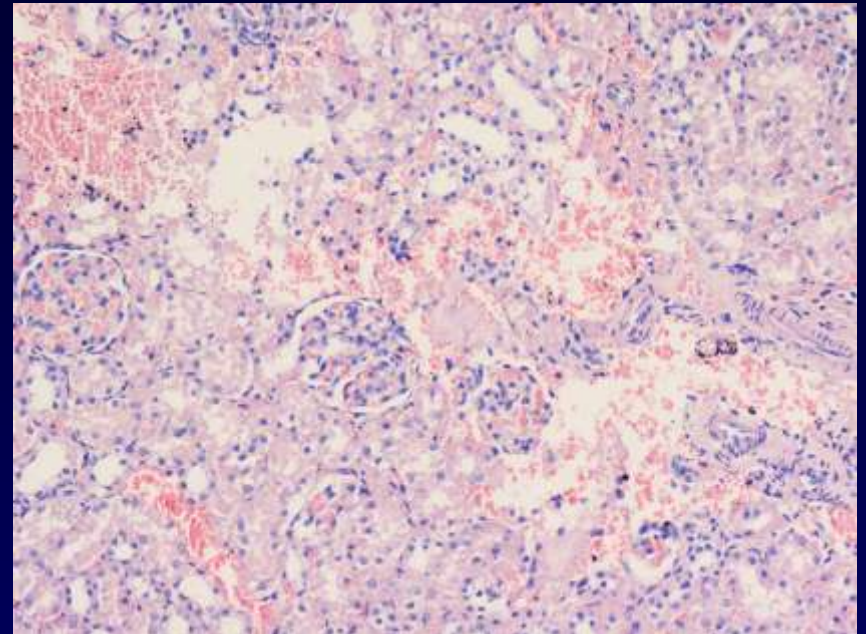
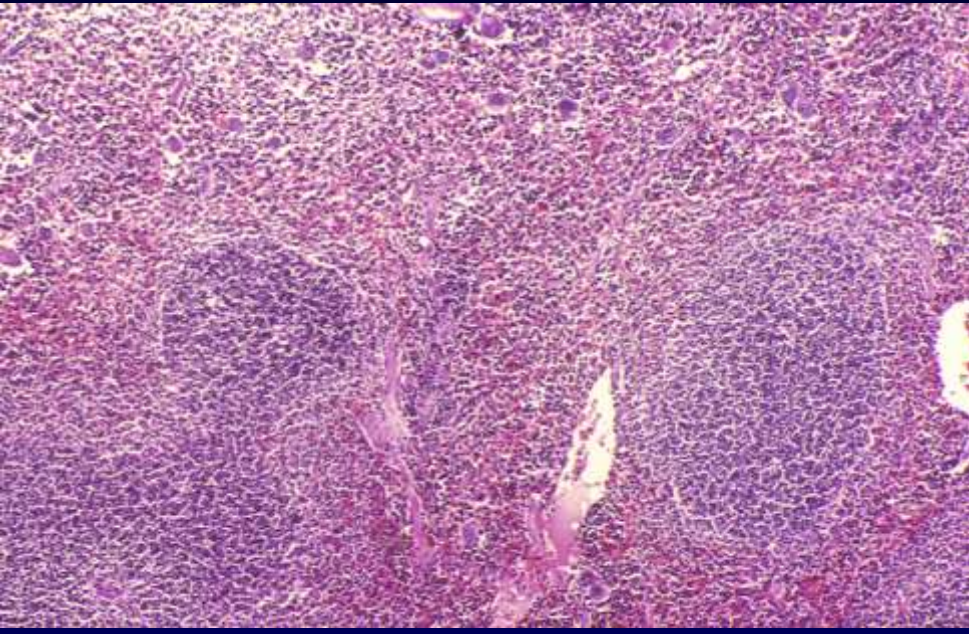


Virus de la hepatitis B humano (HBV)

Virus de la hepatitis de las marmotas (WHV)



**Dra. Adela López de Ceráin (Universidad de Navarra)
Centro de Investigación en Farmacología Aplicada (CIFA)**



Immunotoxic effects of Ochratoxin A in Wistar rats after oral administration

Food Chem Toxicol., 42, 825-834 (2004)

Comparative systemic toxicity of several quinoxalines in Wistar rats

Drug Research 57, 339-346 (2007)

Gene expression changes induced by ochratoxin A in renal and hepatic tissue of male F344 rat after oral repeated administration.

Toxicology and Applied Pharmacology 230,197-207 (2008)