



9

CERRAHi ARASTIRMA KONGRESi

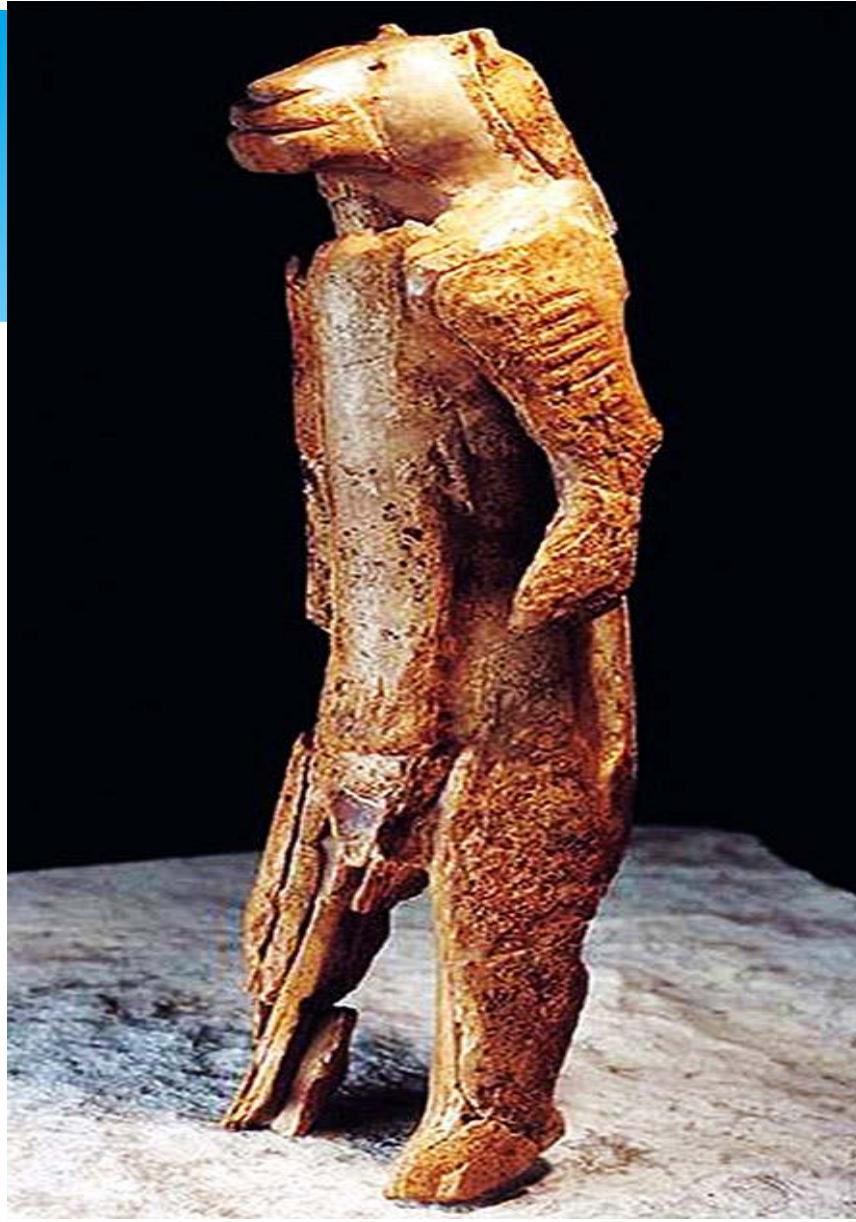
10 - 12 KASIM 2017 / KOCAELİ

HAYVANLarda XENOGREFT/TRANSPLANTASYON MODELLERİ

Mahir Kırnır

Başkent Üniversitesi Tıp Fakültesi

Genel Cerrahi ABD /Transplantasyon BD

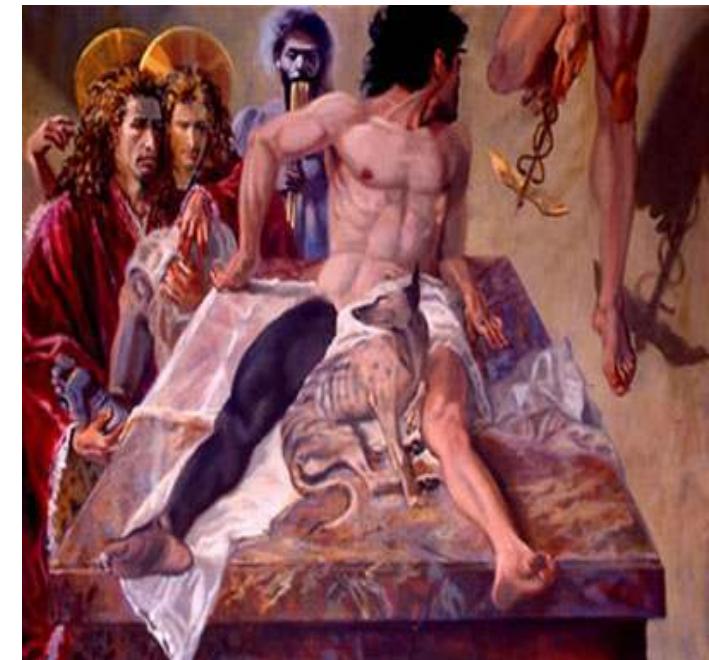


Lion Man (Almanca Löwenmensch : Aslan İnsan anlamında nötral cinsiyette)



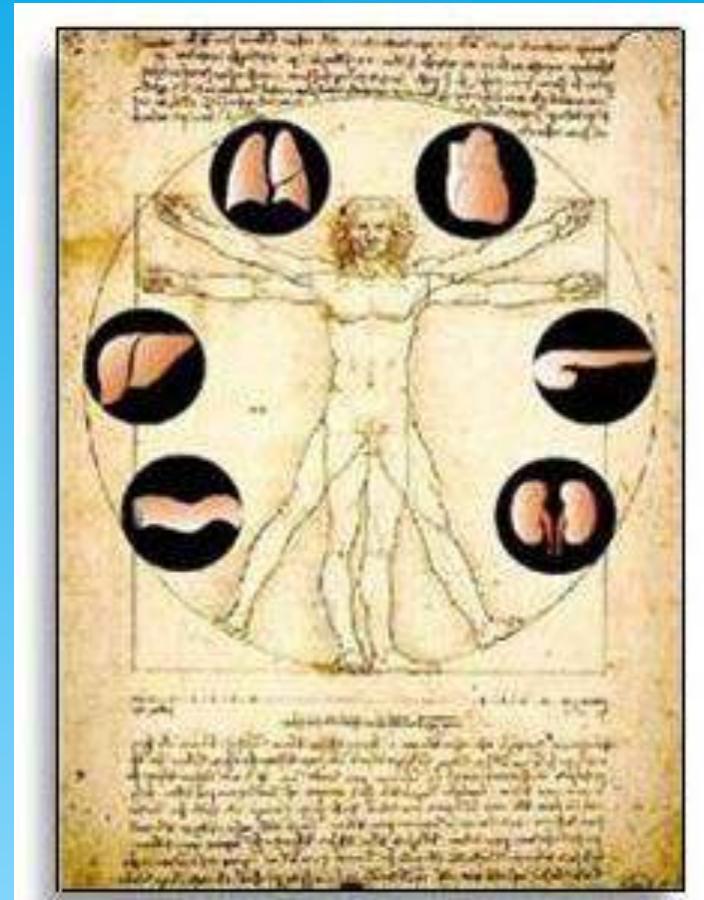
Prometheus
(günümüzden yaklaşık 2700
yıl evvel)

The legend of the “Miracle of the Black Leg”



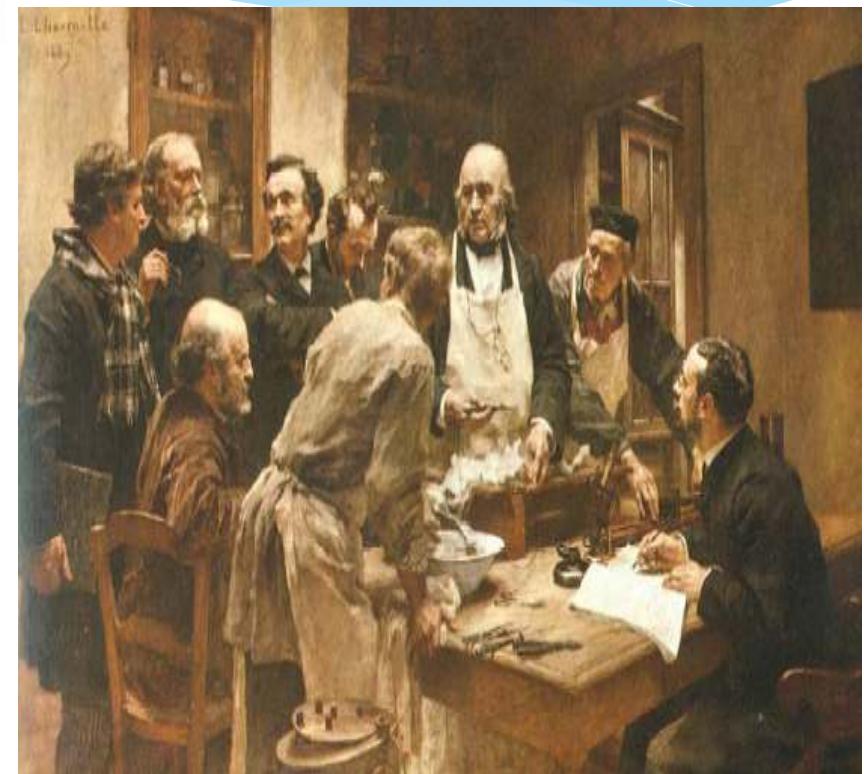
Dünyada organ nakli

3rd Century– Present



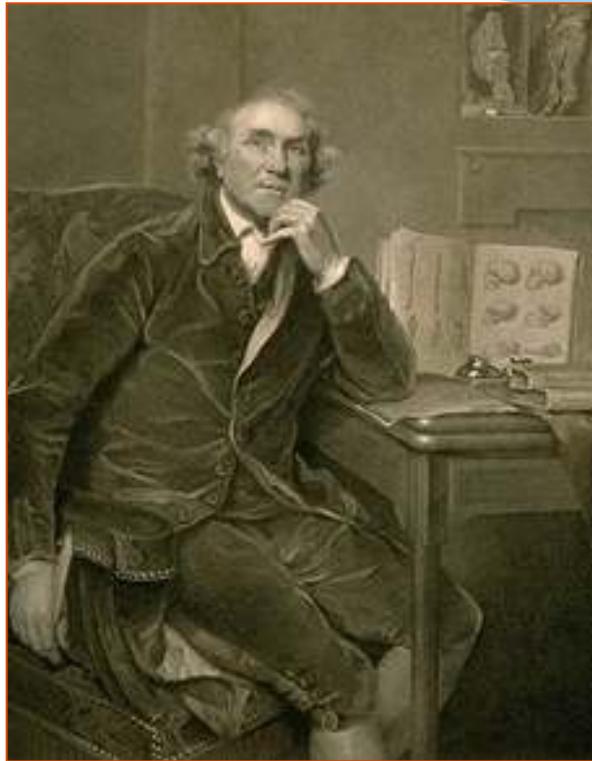
Deney Hayvanları Kullanımının Tarihçesi

- * *Corpus Hippocraticum* (M.Ö. 400) - ilk anatomik kitap
- * *Galen* - ilk fizyolojik çalışmalar



İlk Belgeli Deneysel Çalışma

1770, United Kingdom



John Hunter (1728-1793)

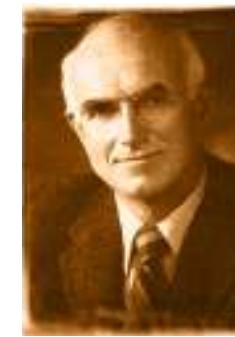
Glasgow, Scotland

Solid-Organ Transplantasyonun tarihçesi

- 1902 USA Development of vascular anastomosis, **Carrel A** (Nobel Prize 1912)
- 1933 Russia First deceased kidney transplantation, **Voroney JP**
- 1954 USA First succesfull renal transplantation, **Murray JE** (Nobel Prize 1990)
- 1955 USA Auxiliary liver transplantation in dog, **Welch E**
- 1966 USA First pancreas transplantation, **RC Lillehei & WD Kelly**
- 1967 USA First successful human liver transplanttaion, **Starzl TE**
- 1967 USA First intestinal transplantation, **RC Lillehei & WD Kelly**
- 1967 South Africa First heart transplantation, **Bernaard C**



A Carrel



JE Murray



RC Lillehei



TE Starzl



C Bernaard

- **1977 UK Clinical usage of Cyclosporine, Borel J, White D, Calne R**
- **1981 USA First successful heart-lung transplant, Reitz B**
- **1983 Canada First successful single lung transplant, Cooper J**
- **1983 Turkey Deceased kidney transplantation with long cold ischemia time (over 100 hours), Haberal M**
- **1986 USA University of Wisconsin solution for long term preservation, Belzer F**
- **1989 USA FK 506 immunosuppression, Starzl TE**
- **1989 Brazil First living related liver transplantation in pediatric patients, Raia S**
- **1990 Turkey First living related liver transplantation in adult patients, Haberal M**
- **1992 Turkey Multiorgan (liver+kidney) living related transplantation, Haberal M**



B. Reitz



R. Calne



F. Belzer

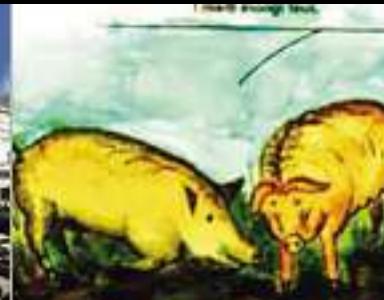


M. Haberal

Türkiyede deneyisel organ nakli

Failure of angiotensin II inhibitor to modify hyperacute rejection

Mehmet A. Haberal, M.D., Mordecai M. Popovtzer, M.D., Keith M. McDonald, M.D., Stephen J. Guggenheim, M.D., Reginaldo S. Picache, M.D., and Charles W. Putnam, M.D., Denver, Colo.

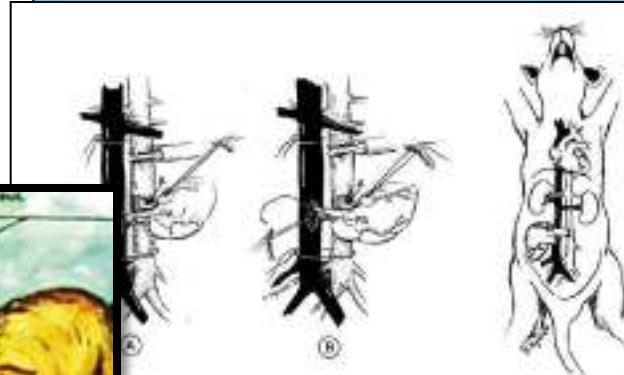


HACETTEPE
TIP/CERRAHI BÜLTENİ



Köpekte Baypas
Kullanılmışmadan Yapılan
Ortotopik Karaciğer
Homotransplantasyonu

Dr. Mehmet Haberal Dr. Pervez Patel Dr. M. Farman Sozai
Dr. Yavuz Arslan Kara Dr. Necat Erol



**January 1, 1974 –
June 30, 1975**

**Experimental and
clinical kidney and
liver
transplantation at
Denver**

University of Colorado Medical Center
Colorado General Hospital



This is to certify that
Mehmet Haberal
has approached and served as

Resident-Fellow in Transplantation
January 1, 1974 – June 30, 1975
with distinction and credit

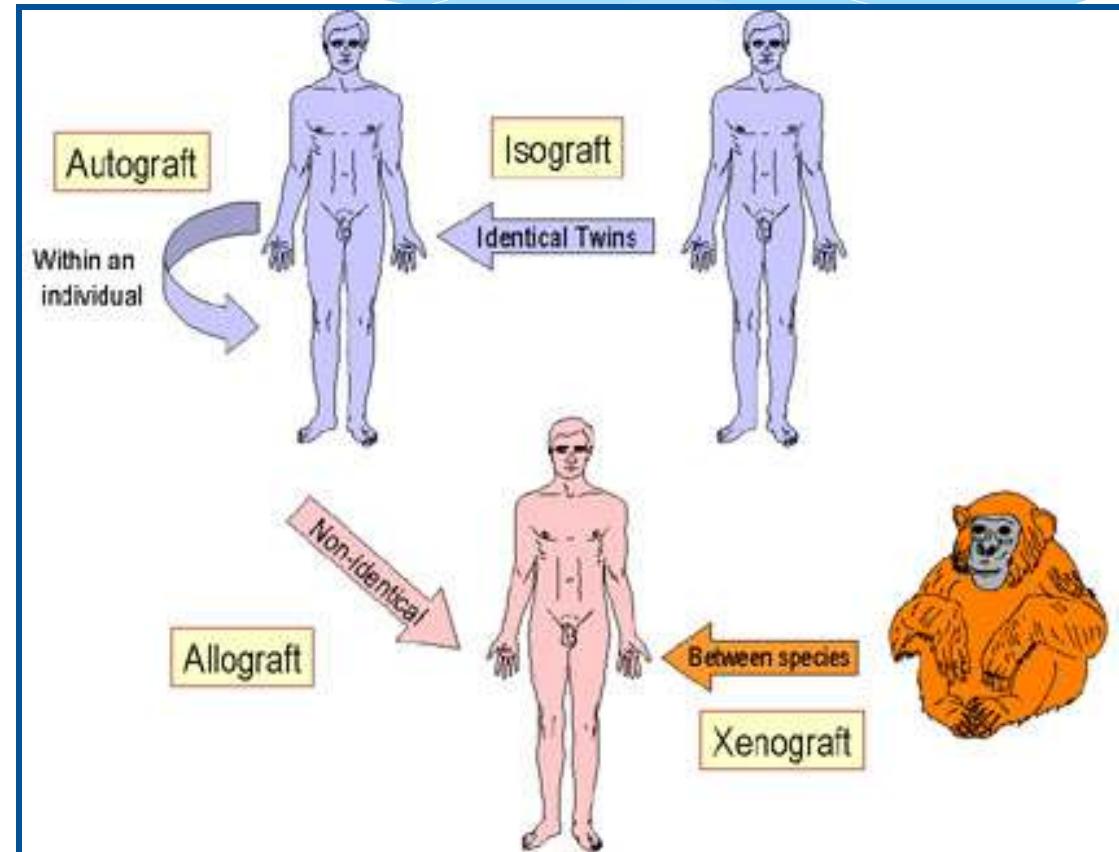
Mehmet Haberal
Mehmet Haberal

John McDonald
John McDonald

**Mehmet A. Haberal, M.D., Mordecai M. Popovtzer, M.D., Keith M. McDonald, M.D.,
Stephen J. Guggenheim, M.D., Reginaldo S. Picache, M.D., and Charles W. Putnam, M.D.,
Denver, Colo.**

Transplantasyon Tipleri

- * Autograft
- * Allograft
- * Isograft
- * Xenograft and
Xenotransplantation
- * Split transplants
- * Domino transplants

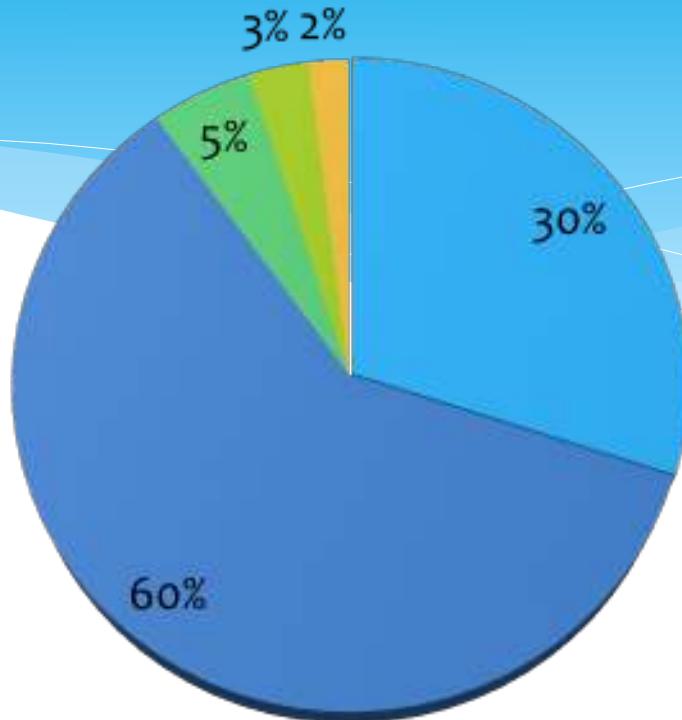


Transplantasyon modelleri





domuz rat fare şenpanze diğerleri



EU; 2010: Deneysel çalışmalarında **12.1 milyon omurgalı hayvan** “AB Komisyon Raporu-2007”.

ABD, 2010; **1.2 milyon omurgalı hayvan**, fare sıçan bu rakama dahil değil, “Ziraat Bakanlığı verileri”

Transplantayon modelleri

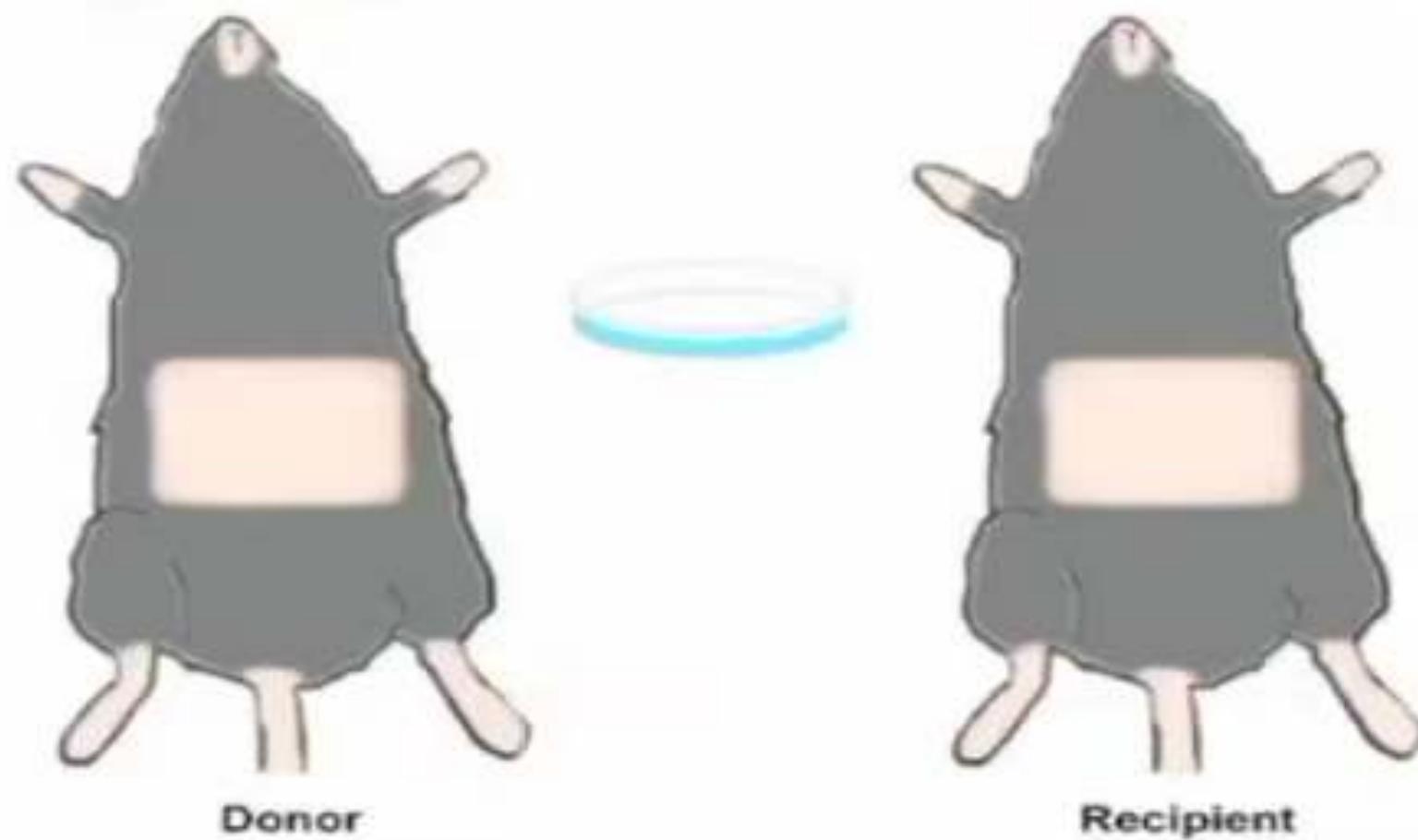
- * Teknik olarak zor
- * Ekipman gereklili
- * Hayvan Anatomisi ve fizyolojisi
- * Mikrocerrahi bilgi ve deneyimi
- * Deneyimli veteriner ve tekniker
- * Mali destek

Transplantasyon modelleri

- * Akciğer nakli
- * Böbrek nakli
- * Kalp nakli
- * Karaciğer nakli
- * İnce barsak nakli
- * Adacık hücre nakli
- * Pancreas nakli
- * Kompozid organ nakli
- * Deri nakli
- * Kan nakli



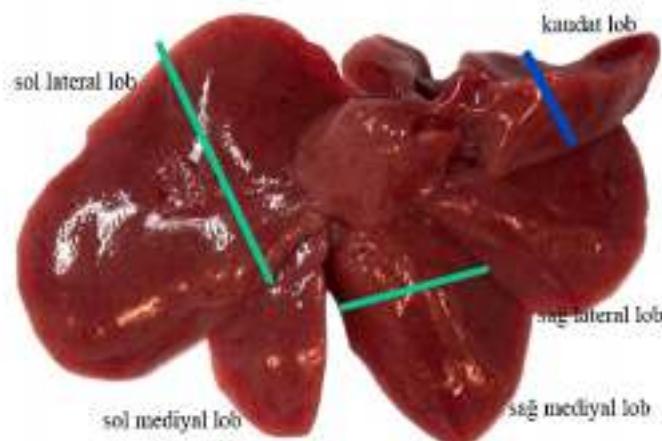
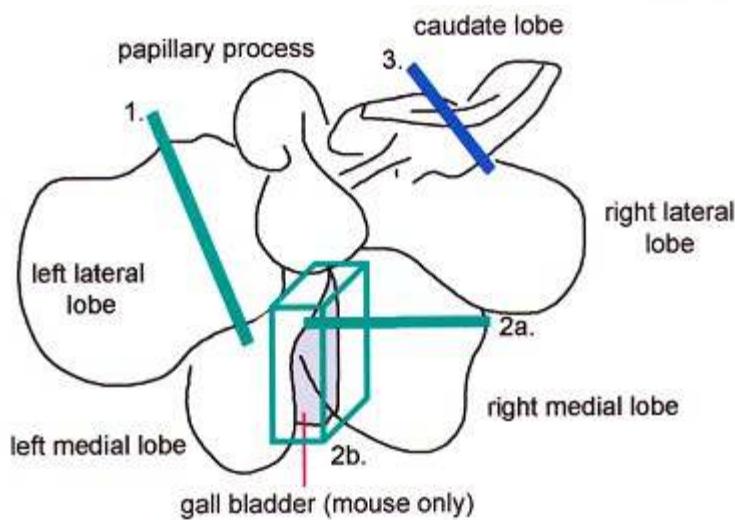
Böbrek transplantasyon modeli



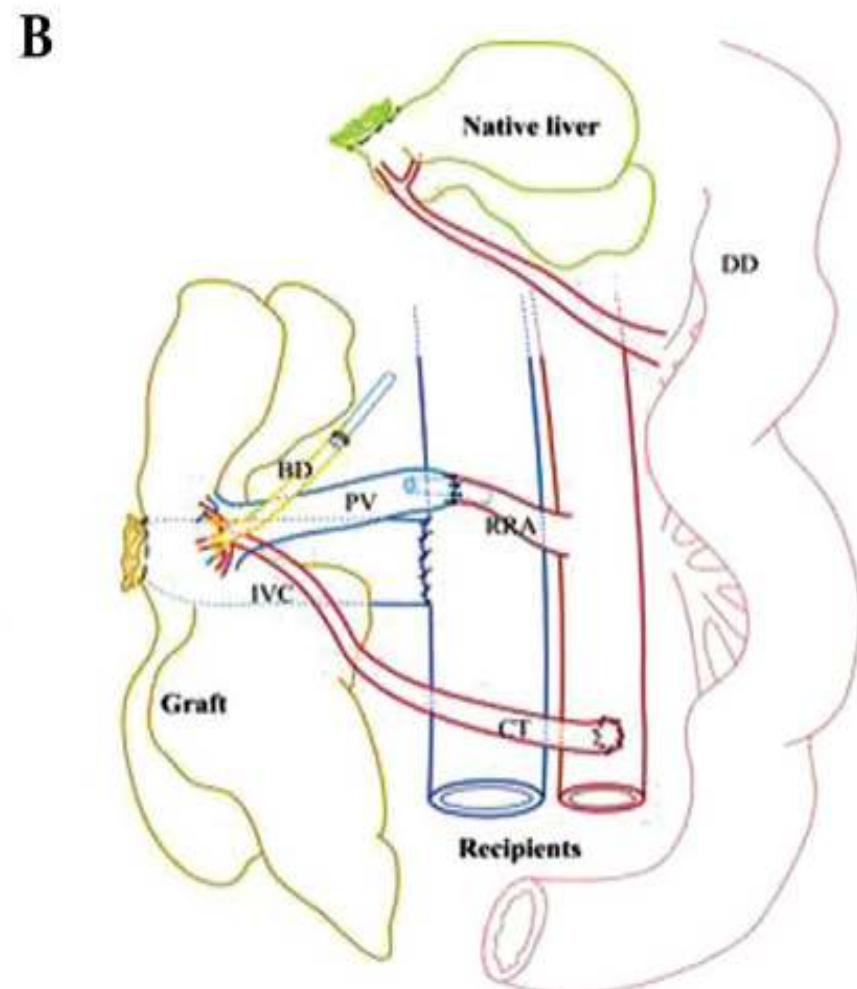
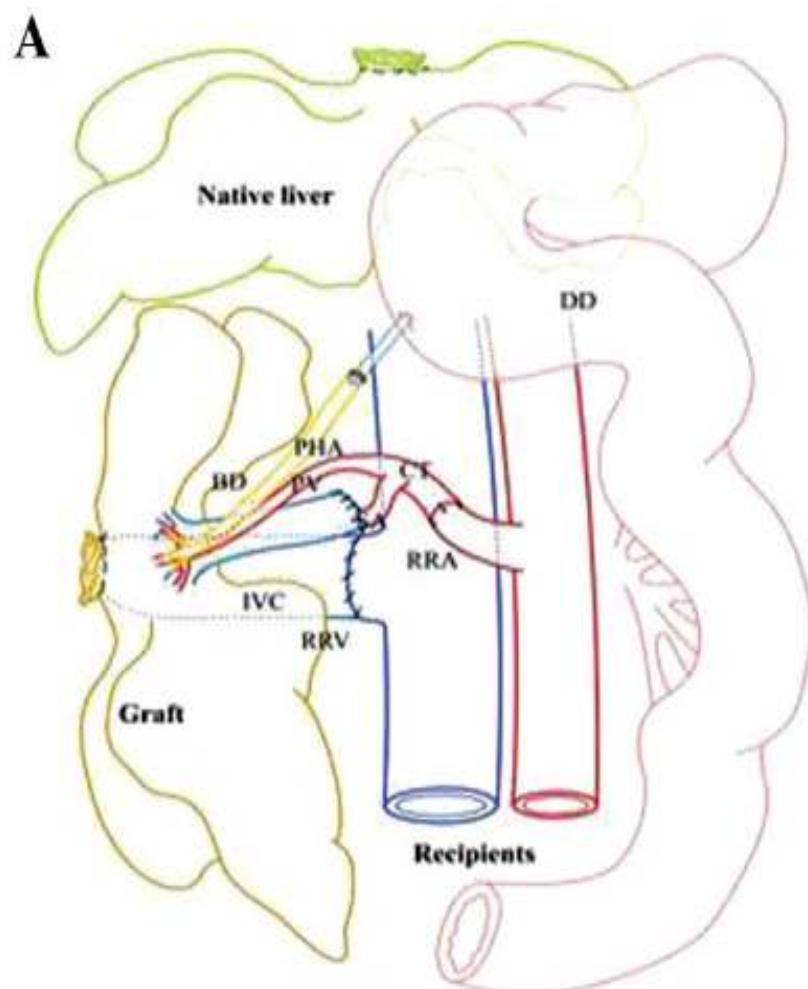
karaciğer transplantasyon modeli

- * Mikrocerrahi eğitimi gerektirir
- * Kanama
- * Radyolojik değerlendirme????
- * Teknik destek
- * Perfüzyon solusyonu
- * Karaciğerde siroz modeli

karaciğer transplantasyon modeli



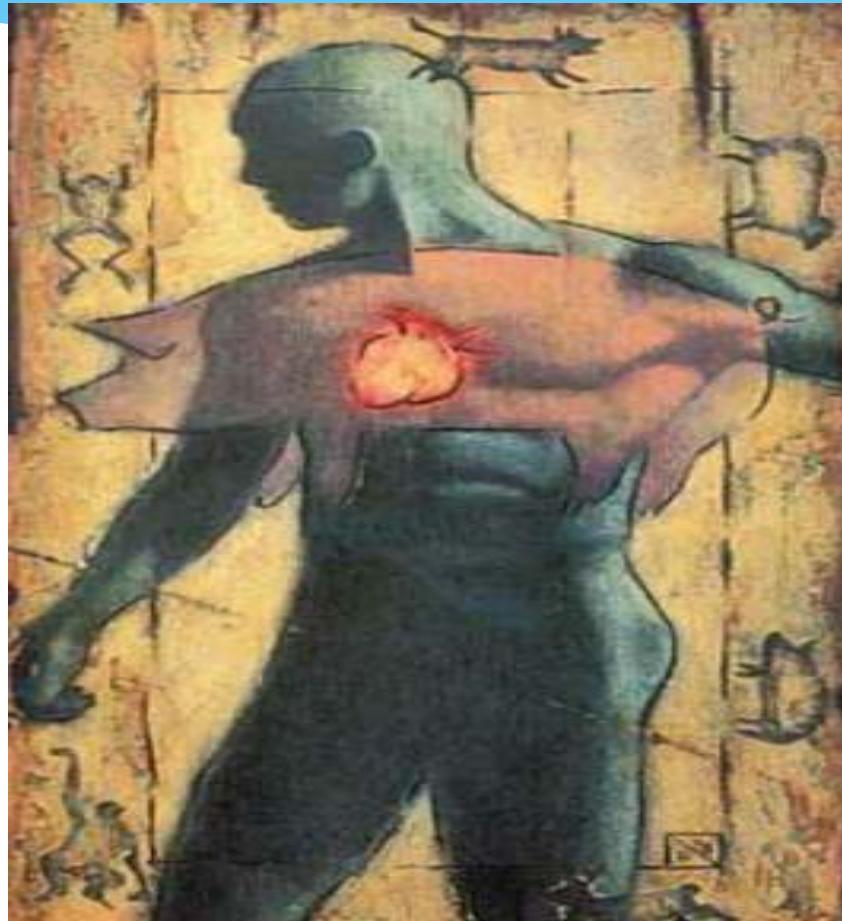
karaciğer transplantasyon modeli



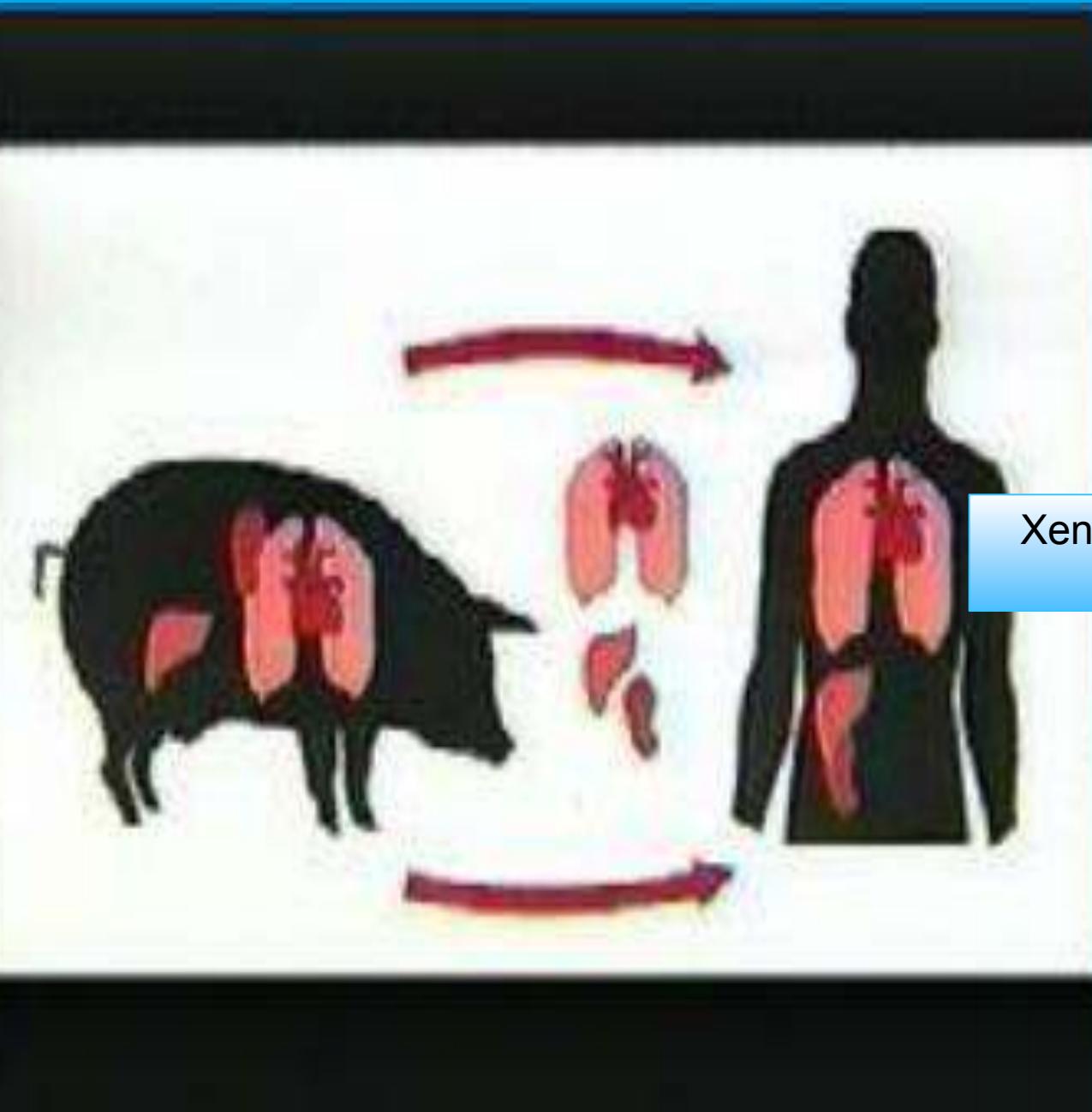
karaciğer transplantasyon modeli



XENOTRANSPLANTATION



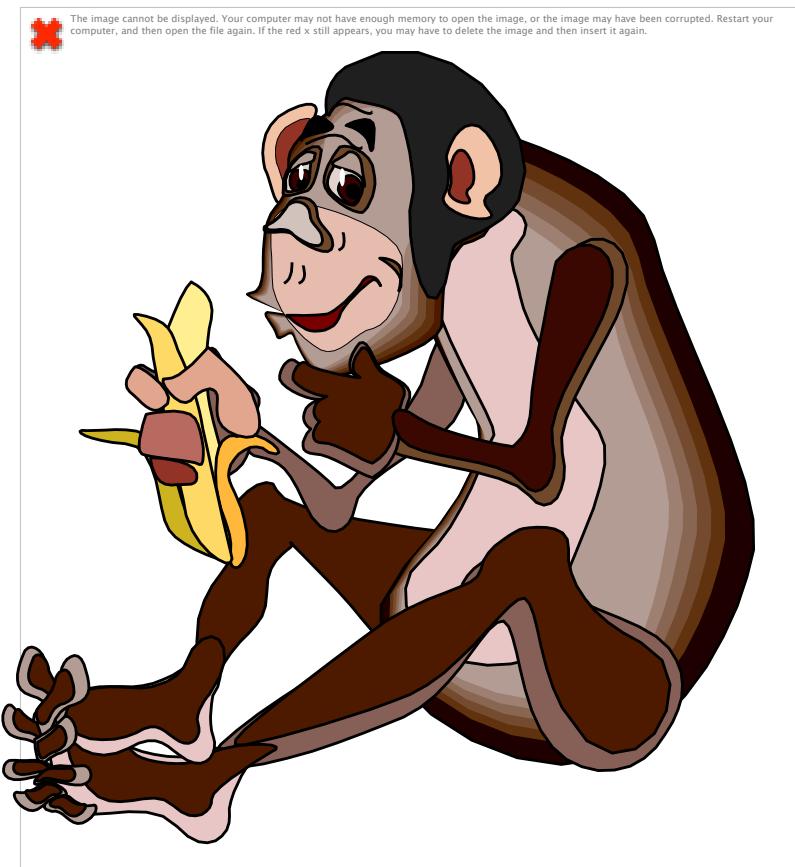
Bir organın veya dokunun farklı türler arasında ki nakli



Xenotransplantasyon Tarihi
1682

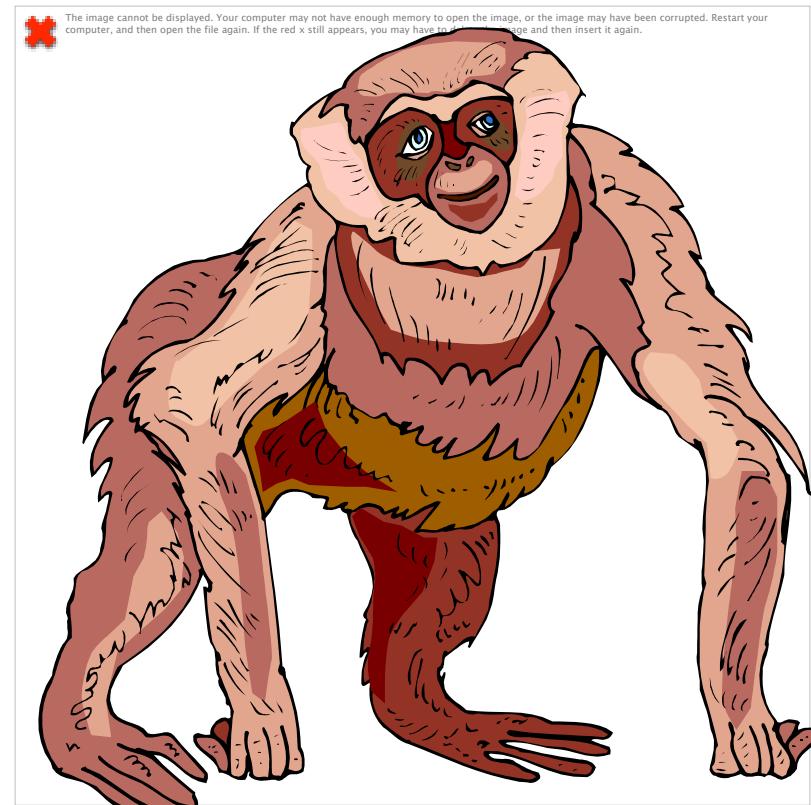
Şempanze

- Onların DNA dizilimi bizden sadece % 2 farklı



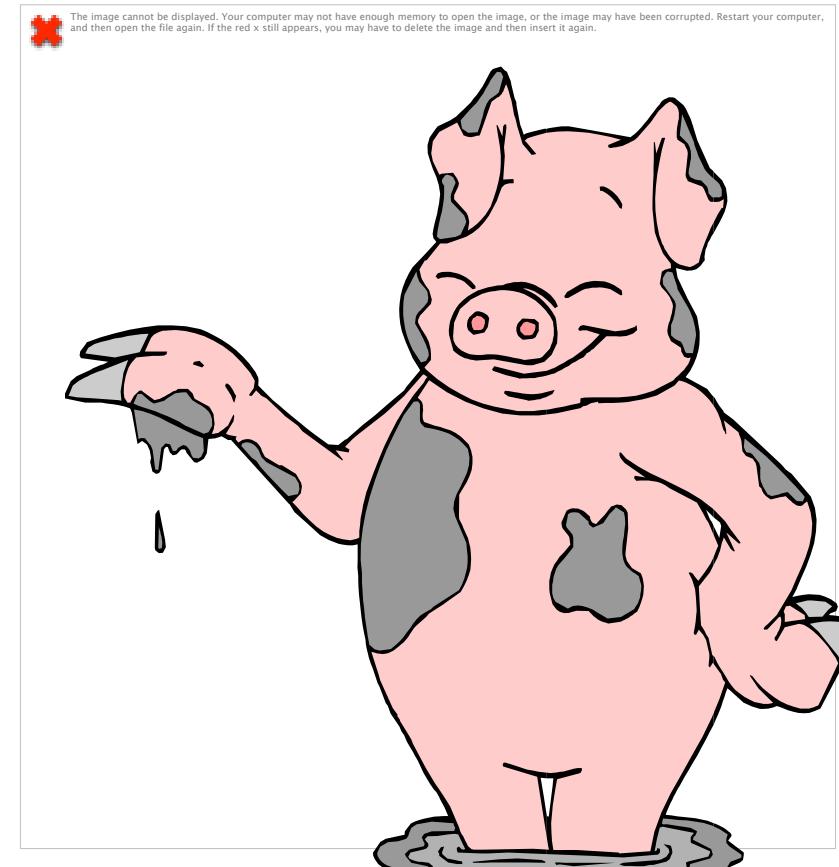
BABOON

- Organları büyük bir yetişkin insan hayatını yeterince destekleyecek kadar büyük değildir

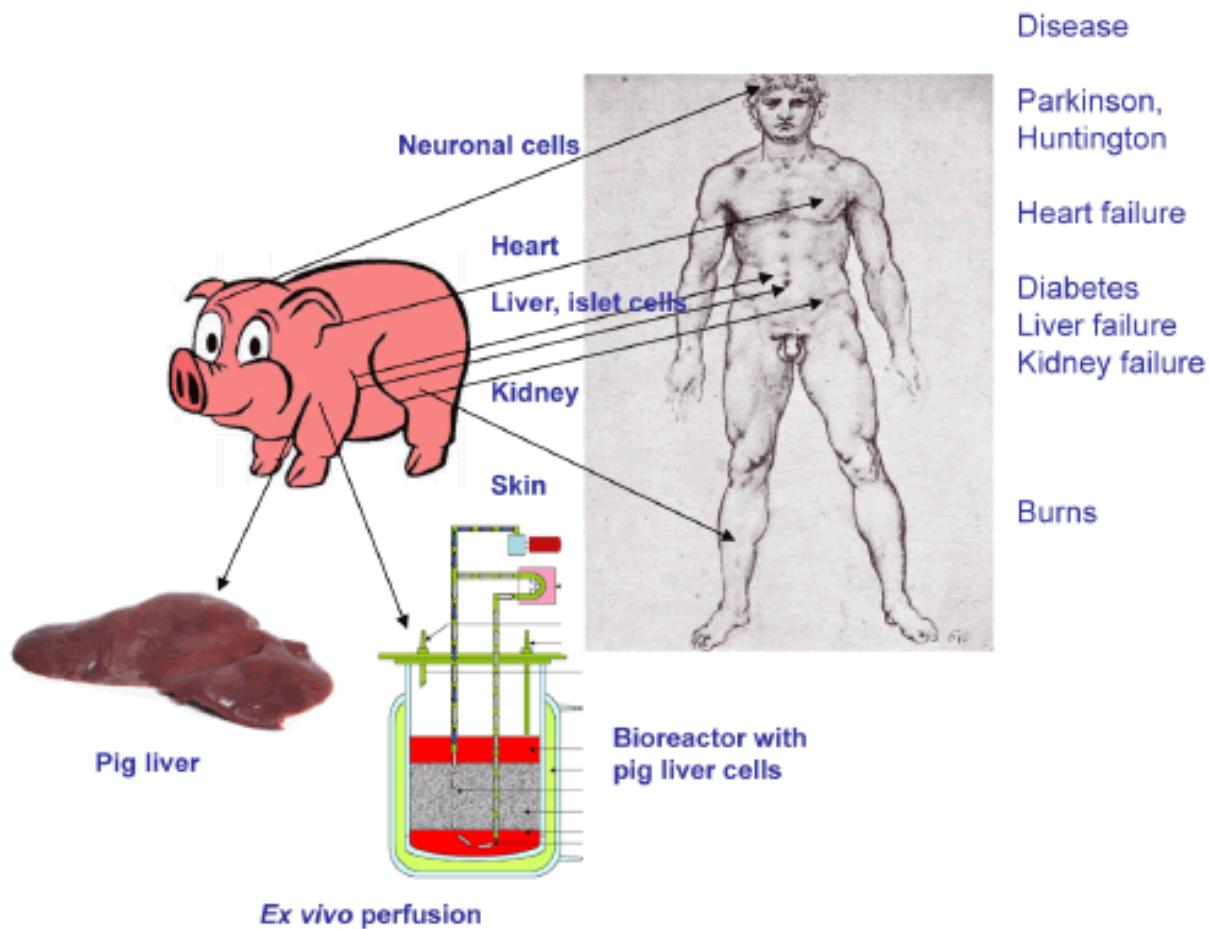


Domuz

- Şaşırtıcı derecede benzer anatomi ve fizyoloji
- Organları korumak kolay ve ucuzdur
- Büyük yetişkin insanlar için organlar yeterlidir



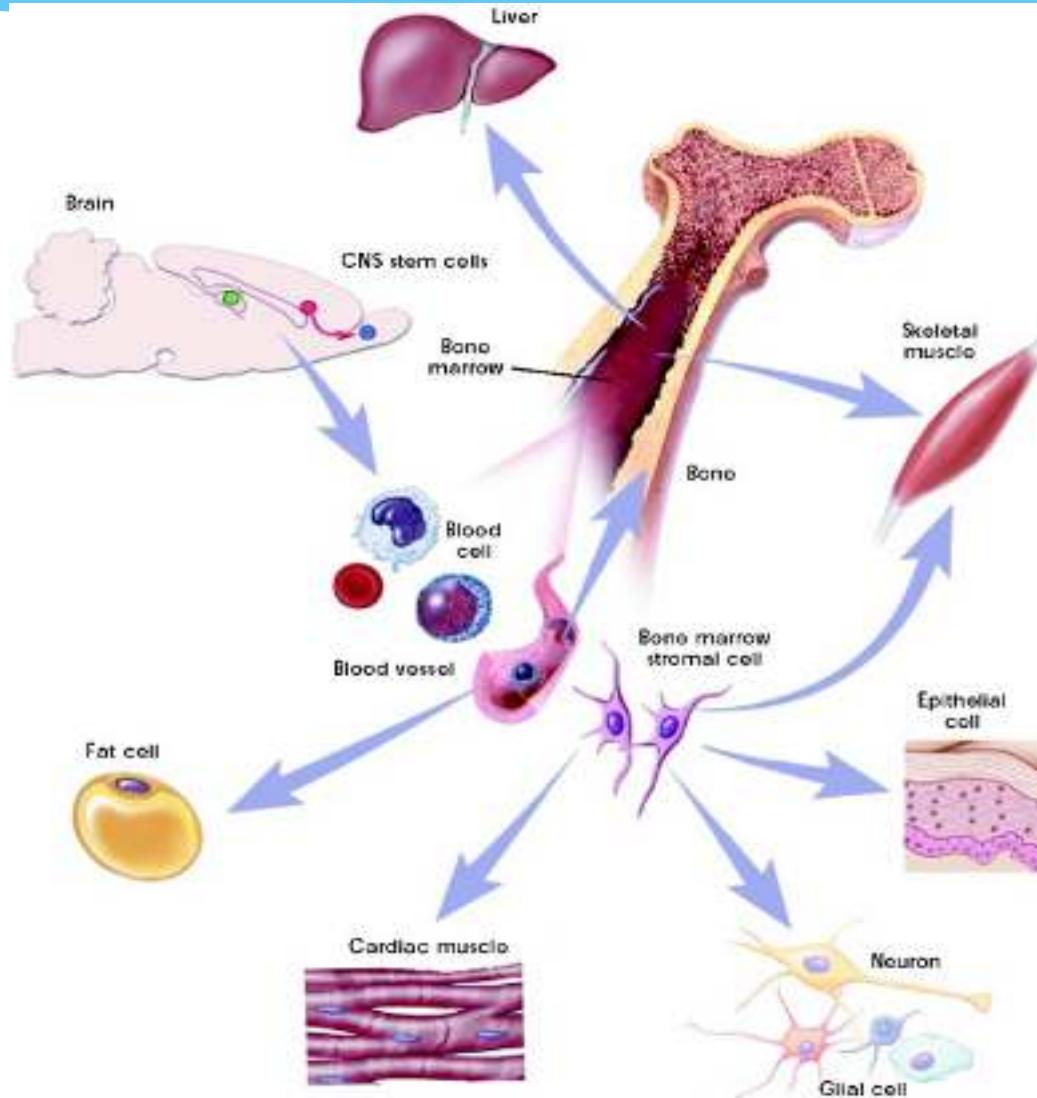
Xenotransplantasyonda nereye gidiyoruz



XENOTRANSPLANTATIONUN TEHLİKELERİ ve engeller

- * İki tür arasındaki mikropların olası transferi
- * nakledilen organizmalar rutin laboratuvar testleri ile tanımlanamayabilir
- * Bulaşıcı mikrop biyolojik davranışlarda veya mutasyonel adaptasyonda değişikliğe uğrayabilir
- * Rejeksiyon
- * Etik sorunlar

XENOTRANSPLANTATIONUN ALTERNATİFLERİ



1881-1938
Saygıyla Anıyoruz

