

Rat Dissection on

Species:
*Rattus
norvegicus*



The Real *Rattus norvegicus*



Classification of *Rattus norvegicus*

- Kingdom Animalia
- Phylum Chordata
- Class Mammalia
- Order Rodentia
- Family Muridae
- Genus Rattus
- Specific epithet norvegicus



Invasion of *Rattus norvegicus*

- From Norway, around 1775



Why Dissect?

1. To find out what the systems of a mammalian body look like and do, so you understand where things are in your own body and what they do!
2. To discover what is physiologically normal and what is abnormal.

Why Use Rats?

1. They are not in danger of going extinct (like some frogs).
2. They are mammals and therefore are similar to you.
3. They are raised for laboratory use, like dissections.
4. They multiply **FAST!!!**
5. Lab rats lack the “cute” factor like pet rats, bunnies, mice...even fetal pigs.



This Semester's Challenge: Exploratory Surgery

We know from previous experience with lab rats that many have something wrong with them.

Find out if your rat has some sort of problem by performing an exploratory surgery!

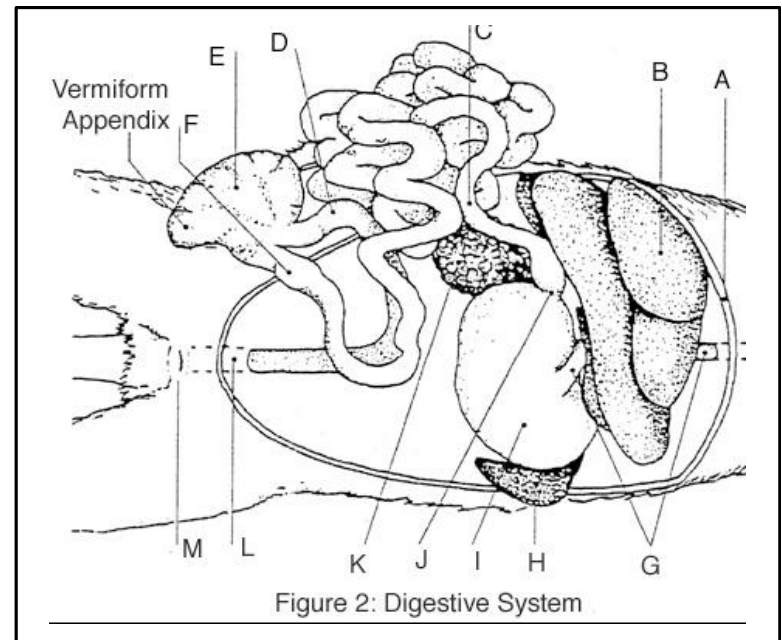


To Dissect

Means to expose to view,
not to chop up.

Never cut more than is
absolutely necessary
to expose a part

Observe all the structures
and their connections
to other structures



Tools

NO

Scalpels (rarely)

YES

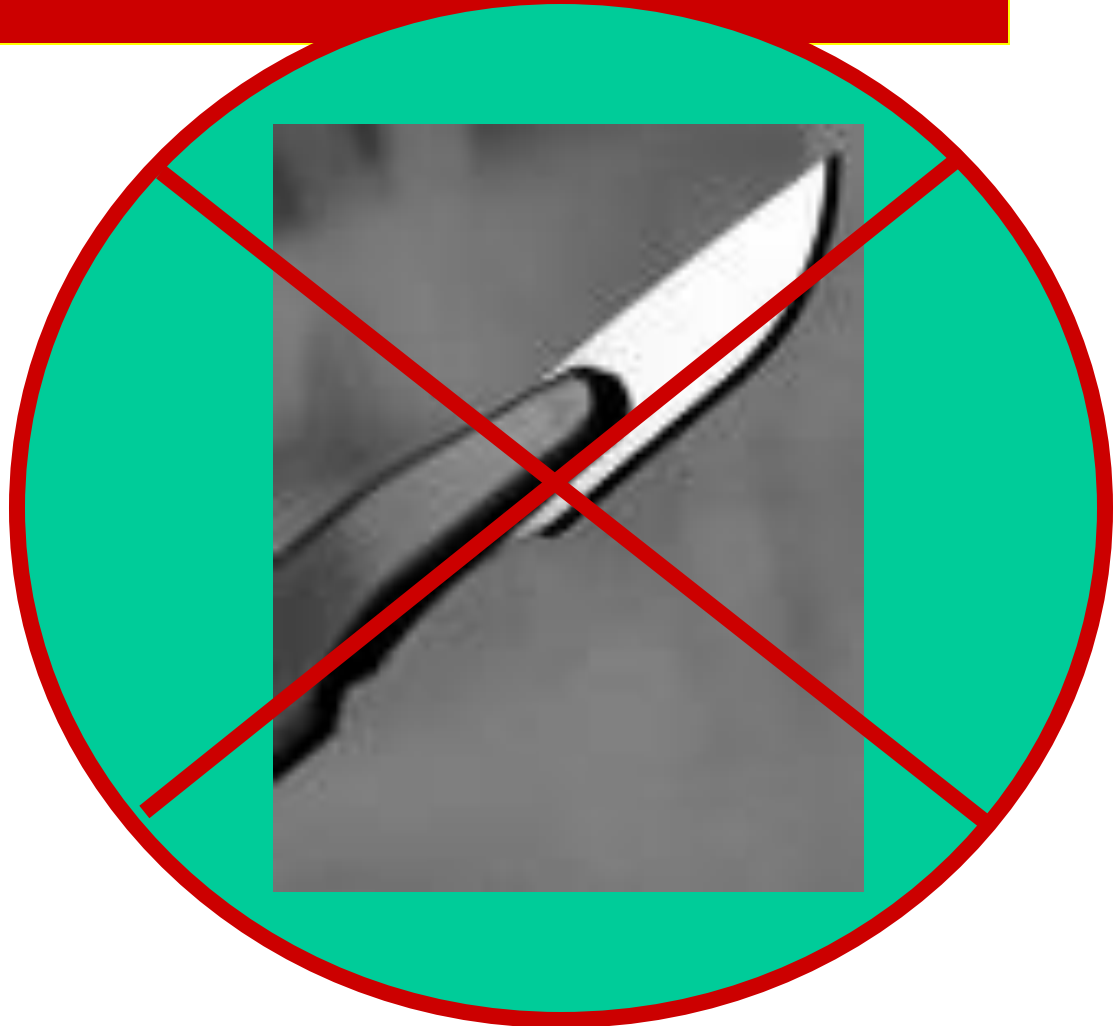
Scissors

Blunt Probe

Dissecting Needle

T Pins

Forceps



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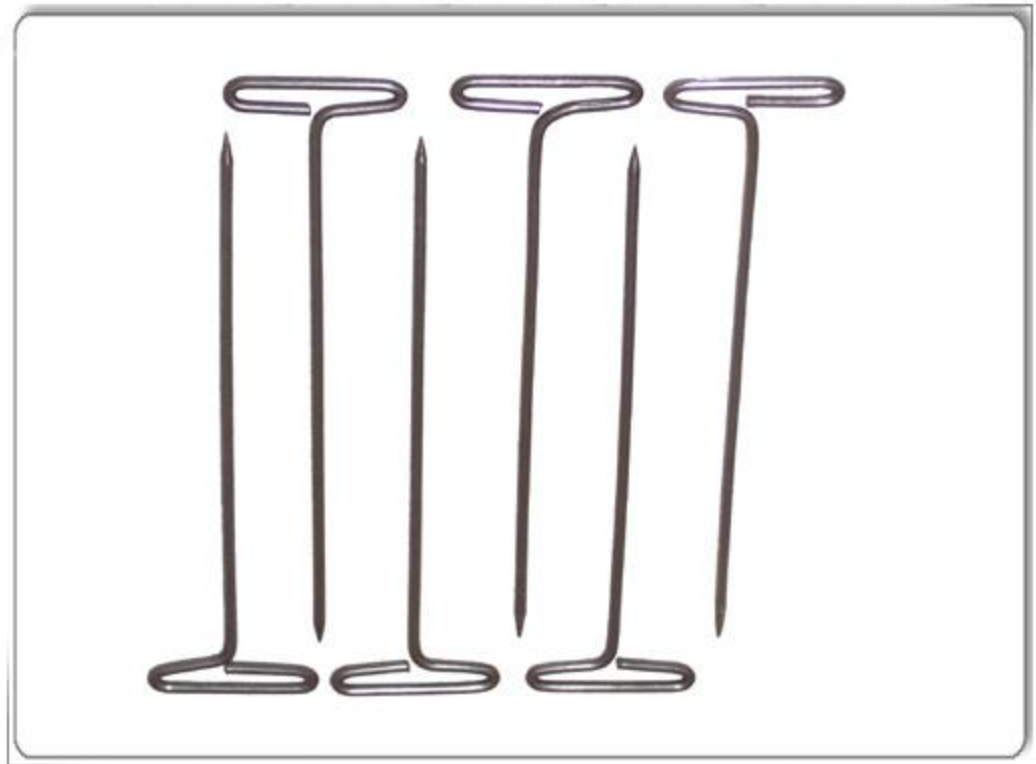
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Questions to Ask Yourself

What are the relationships of organs and organ systems to one another? Think of anatomical directions as well.

REMEMBER: STRUCTURE DETERMINES FUNCTION!

Think about:

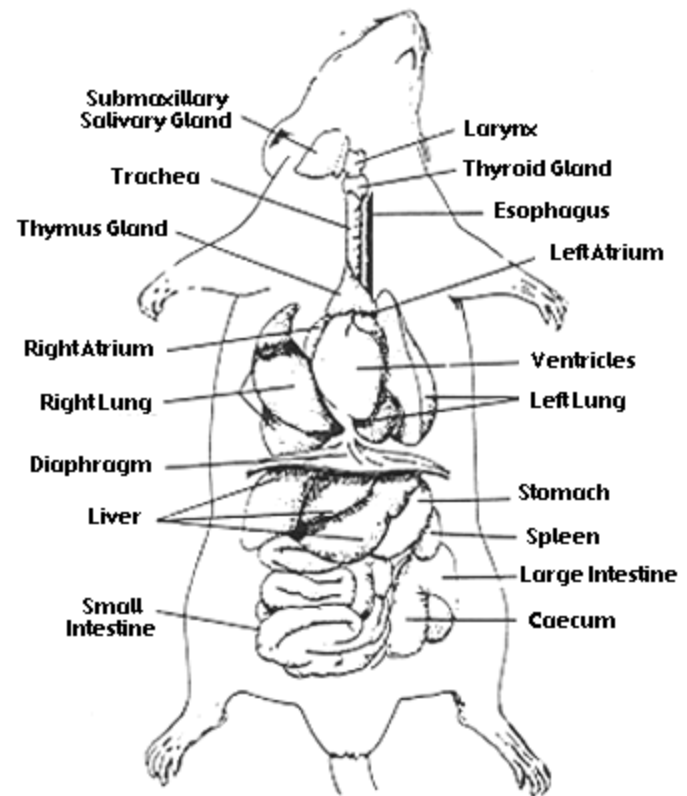
- What organ system a part belongs to
- How it is connected with other parts
- Its general function
- Its specific functions
- Where it is in *your* body (anatomical directions)

Questions to Ask Yourself

On a “Lab Test” you* will be expected to:

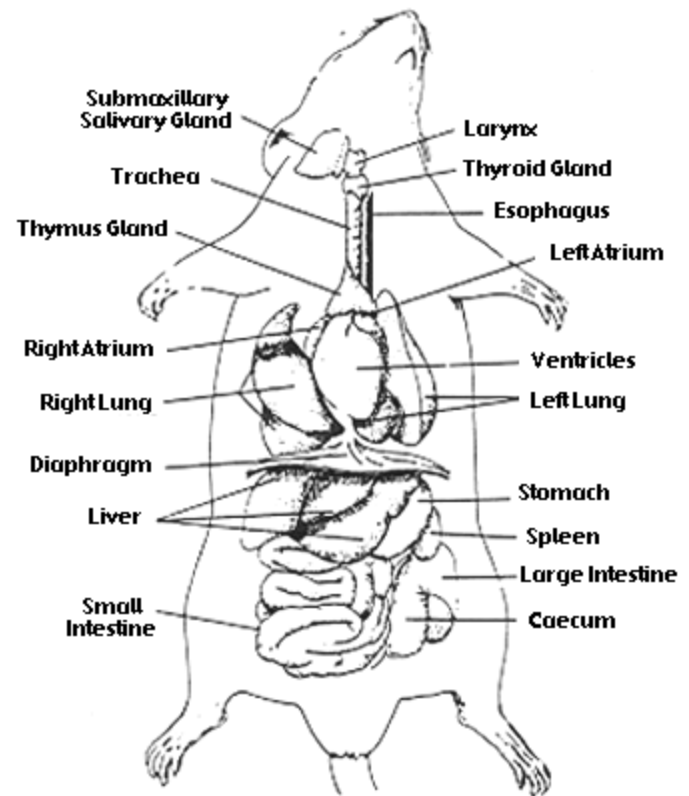
- Name/Identify a structure
- Explain its function

* **Be sure you know everything, not just your lab partners!**



Questions to Ask Yourself

Quiz yourself and your lab partners. Go to other lab stations because on the test, you will look at several different rats, not just your own!



Systems we will Observe

- **Digestive**
- **Excretory**
- **Reproductive**
- **Respiratory**
- **Circulatory**
- **Nervous – (if time)**



Learn Both Sexes by Sight

Male =
Buck



Female
= Doe



Rat Stats



- Young = Pups
- Adult weight = 175 – 350g
- Life expectancy = 1-2 years on average
- Gestation = 20 - 22 days (5 litters/year)

Rat Stats



- Birth weight = 5g
Size of litter = 8 - 12 on average
Young are born blind and hairless
Eyes open = 14 days
Weaning age = 21 days

To Begin

Get your rat, name it if you wish, and place it on a dissecting tray in supine position. Tie down your rat as directed in your lab sheets.



Rat Care



Write the names of the people in your group on a plastic bag with permanent marker.

Before you begin each dissection day, rinse your rat off, both inside and out. Do this gently so as not to dislodge any parts

Rat Care

At the end of a dissection day, simply slip the strings off the dissecting tray (do NOT cut them or untie them from your rat) and put your “rat purse” in the plastic bag



Place your bagged rat in the trays on the back counter.

Instrument Care



Rinse your dissecting tray and turn it upside down on a towel.

Rinse **AND DRY** your instruments, put them in their box, and leave the box **OPEN** so I can check instruments and so they can air dry more.

Glove Care

Write your name on both your gloves using a black permanent marker.



Glove Care

When done for the day

Wash your hands with your gloves on

Dry your hands with your gloves on

Pull off your gloves so they are inside out



Place your gloves in the bin on the back counter

Sketching



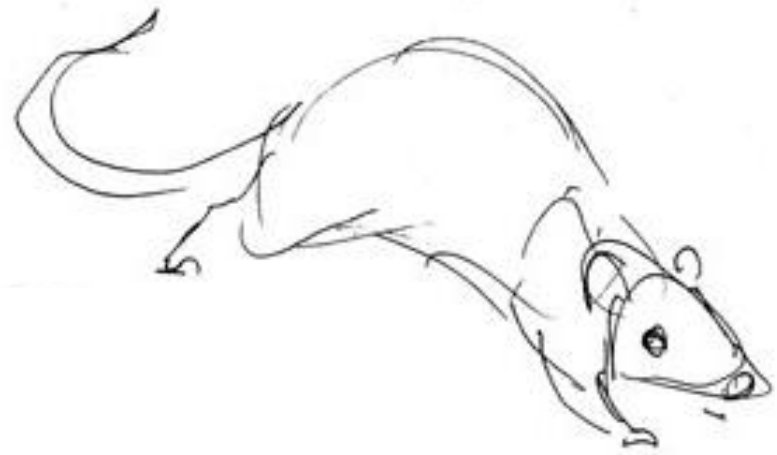
Each person makes their own sketches.

SKETCH, don't draw with shading, etc.

Each sketch should cover the entire space provided.

Labels are to all be horizontal, with arrows (or lines with dots at the end) pointing to the appropriate part.

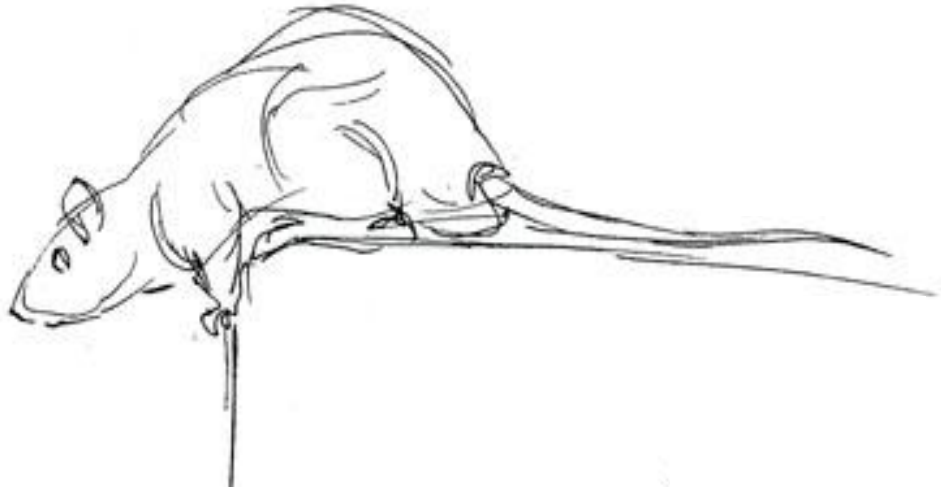
Sketching



Your sketches should NOT be copied from another person or from a picture.

The parts that you are sketching should be in enough detail that someone who has never seen a rat could look at the drawing and, from it, identify the proper structure in a rat.

Sketching

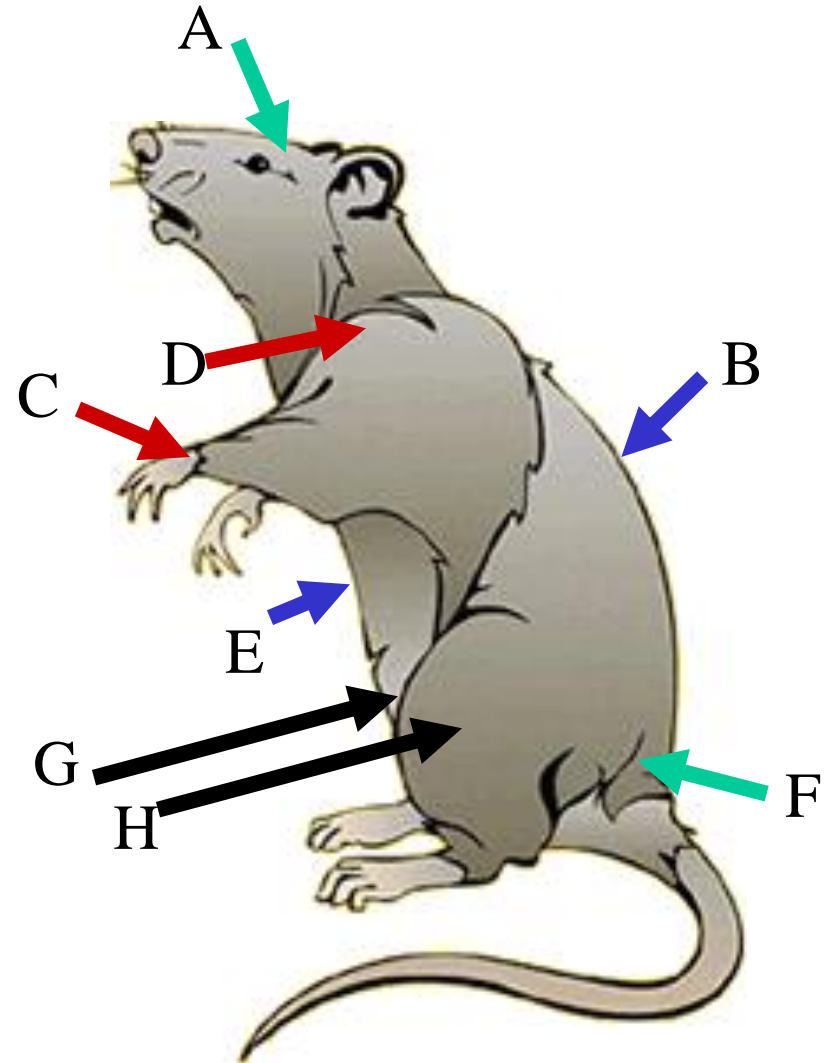


Neatness and accuracy counts!

WHOLE animal, with parts in relationship to each other, not parts separately.

Orientation

What
“directional
terms” would
you apply to
each arrow?



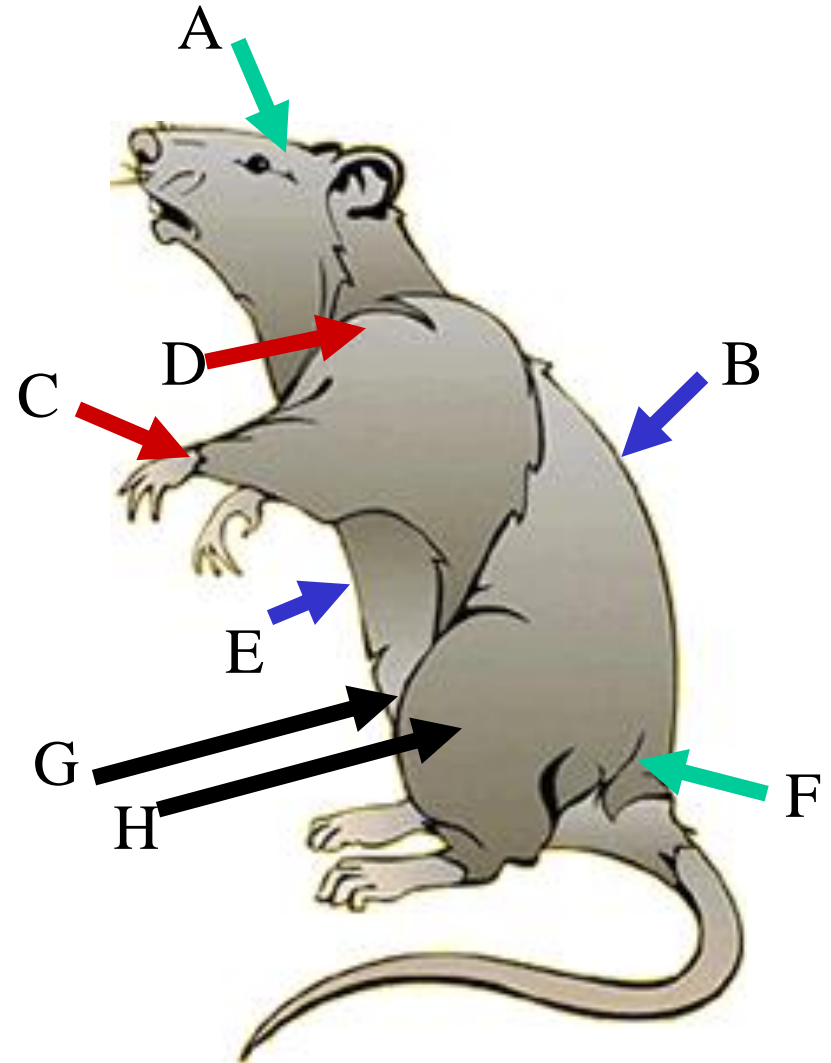
Orientation

Dorsal = back side

Ventral = front side

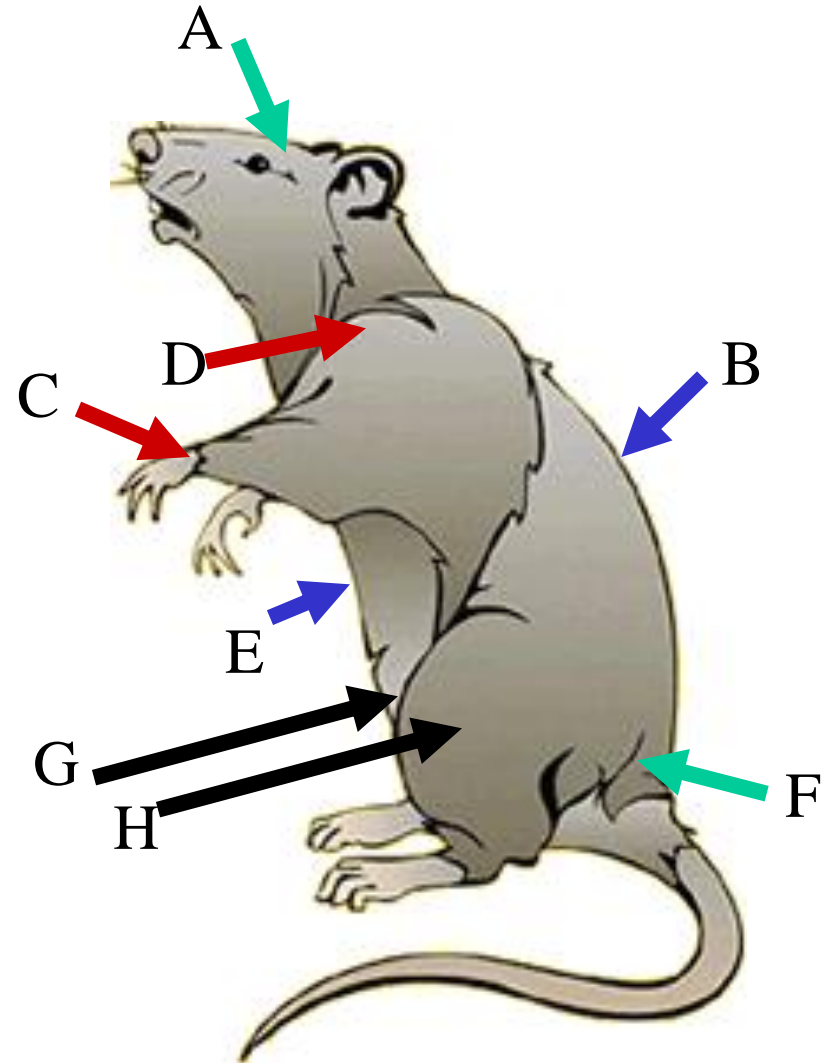
Anterior = toward the head

Posterior = toward the tail



Orientation

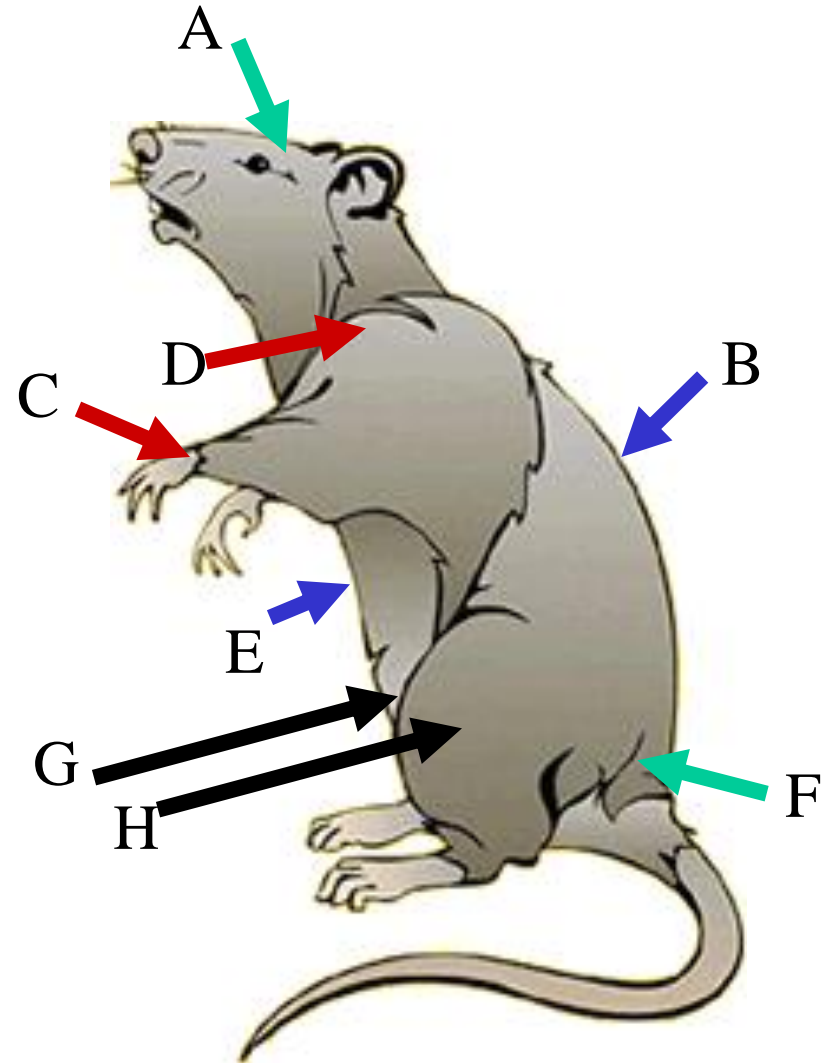
Medial = toward the midline of the body or a structure.
Lateral = furthest from the midline of the body or a structure



Orientation

Proximal = a point on a limb close to where that limb is attached to the body

Distal = a point on a limb far from where that limb is attached to the body.



Orientation

Supine = dorsal side down (tummy up)



Prone = dorsal side up (tummy down)



Let's Do Exploratory Surgery!

