

## PROTOCOL FOR GAS SCORING AND GAS SAMPLING

Yara Bernaldo de Quirós, Óscar González-Díaz, and Antonio Fernández

### Material

- Tubes: **Glass 5-mL additive-free BD vacutainer ® or 2 mL MONOJECT™ Red Stopper (Silicone Coated) glass tubes** (ref #8881301116). **No other tubes (brands, material, volume, etc. are valid!)**
- Disposable Insulin syringes: **BD Plastipak U-100 insulin** (ref #329651). **No other syringes are valid!**
- One Use Tube Holders: BD Vacutainer ® (ref #36481), or equivalent.
- Double pointed needles: BD Vacutainer Blood Collection Needles (ref #367210), or equivalent.

### Protocol

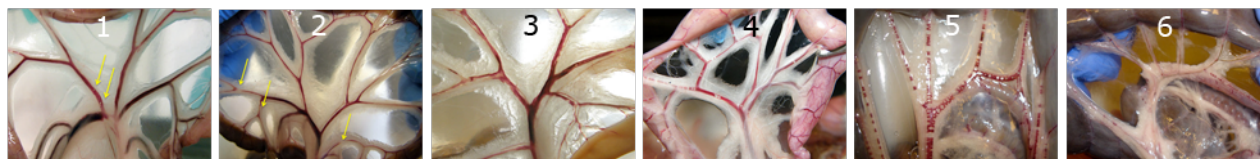
It is very important that **no organs are cut or removed before** gas scoring and gas sampling is done. After gas sampling, necropsy protocols may proceed.

1. Carefully remove the skin and blubber minimizing damage to the major subcutaneous veins.
2. Examine the visible and larger subcutaneous veins for gas bubbles and assign a gas score. Always take a photo to demonstrate the gas score.
3. Open abdominal and thoracic cavity
4. Examine and determine a gas score to each of these locations. Take photos:
  - a. the mesenteric veins,
  - b. the lumbo-caudal venous plexus and renal veins,
  - c. the coronary veins.

| Presence of gas bubbles?<br>(Y/N) | Subcutaneous v. | Lumbo-caudal venous plexus | Mesenteric v. | Coronary v. | Subcapsular emphysema | TOTAL |
|-----------------------------------|-----------------|----------------------------|---------------|-------------|-----------------------|-------|
|                                   |                 |                            |               |             |                       |       |

5. Sample up to 5 bubbles from each of these locations. Take extra samples if you observe bubbles in other locations. Prioritize taking samples from the thoracic vasculature. Sample the bubbles using the insulin syringe and injecting promptly the content into the tubes. **Use one new syringe and one new tube for each gas bubble.**
6. Sample intestinal gas from the proximal, medial and distal intestine sections applying the tubes directly with the double pointed needles coupled to the one-use tube holders.
7. Sample subcapsular gas if present as described for the intestinal gas.
8. Label each tube with location and amount of gas sampled (see annex 2).
9. Label at least **three empty tubes** from the same package as blanks.
10. Store sample and blank tubes together at room temperature, preferably with the stopper downwards.
11. **Analyze within two weeks.** If shipped by aircraft is required a plastic housing resistant to negative pressures must be used.

### Gas Score



### Contact information:

Yara Bernaldo de Quirós Miranda,  
E-mail: [yara.bernaldo@ulpgc.es](mailto:yara.bernaldo@ulpgc.es)  
Emergency phone: (+34) 650480647

### Shipping address:

Instituto Universitario de Sanidad Animal y Seguridad Alimentaria  
Facultad de Veterinaria  
C/Transmontaña s/n