

# Comparison of quality of Arabian and Thoroughbred colostrum and ability to transfer passive immunity



## and ability to transfer passive immunity

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Kellogg Honors College Capstone 2011

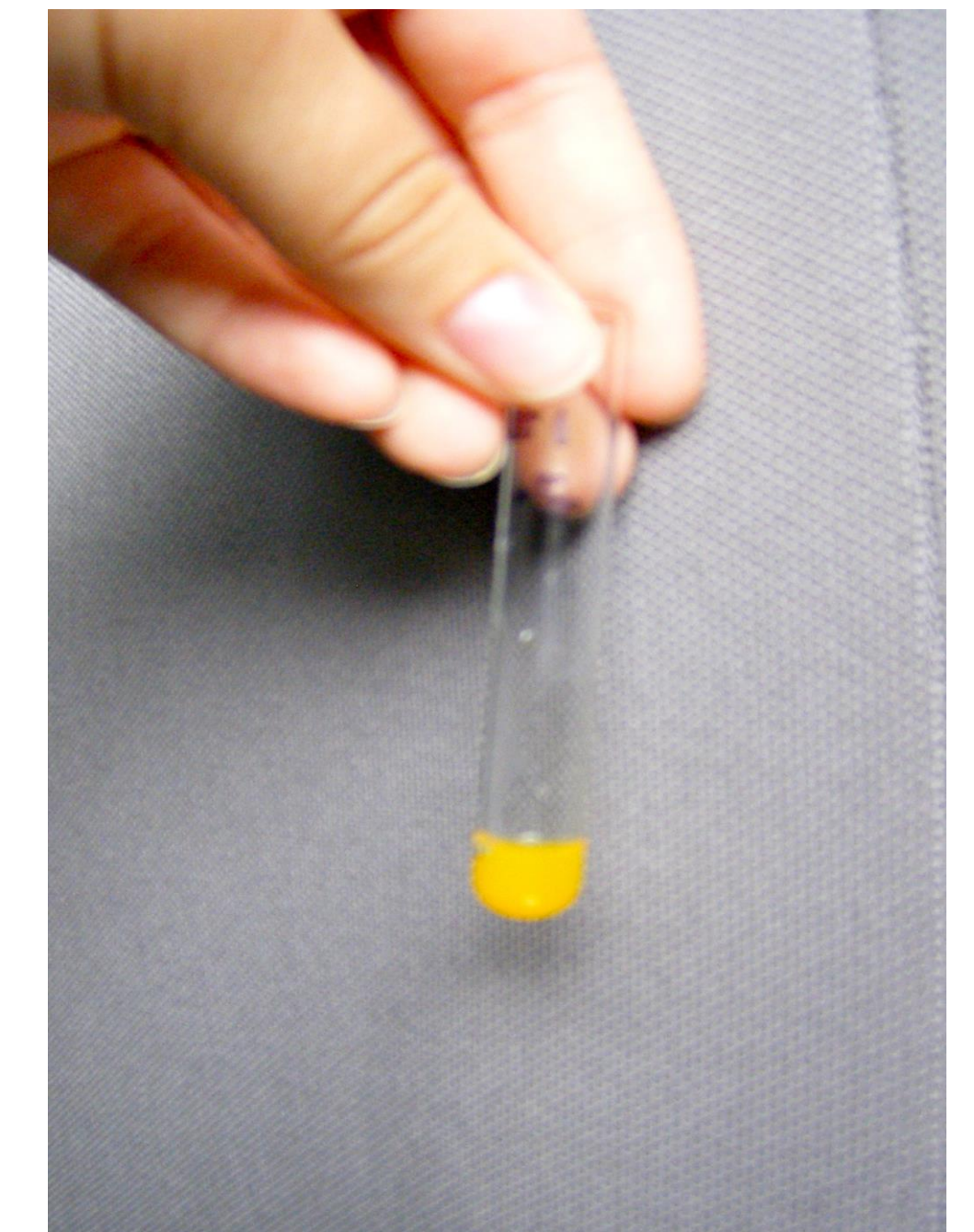


**Overview:** Colostrum is extremely important to the health of the newborn foal. Colostrum provides immunity to the foal for the first 2 months of life. Failure of passive transfer (FPT) is defined as a serum IgG (SIgG) level of less than 400 mg/dl. Partial failure of passive transfer (PFPT) is a SIgG level of 400 to 800 mg/dl. While adequate passive transfer is a SIgG level of greater than 800 mg/dl. When the foal has FPT or PFPT it is more likely to develop diseases or die. There are many reasons the foal may develop FPT but poor quality colostrum is the number one cause.

**Purpose:** The goal of the project was to determine if there was a difference between the value of Arabian and Thoroughbred colostrum quality and the ability of each breed to transfer passive immunity. Since this information could prove useful for colostrum banks to determine which breed's colostrum should be stored for future use. This information can also be used to determine which breeds need careful evaluation after birth.

**Background:** Previous study results have found that Arabian colostrum has a higher value than Thoroughbred colostrum and that Arabians therefore had an easier time transferring passive immunity to their foals.

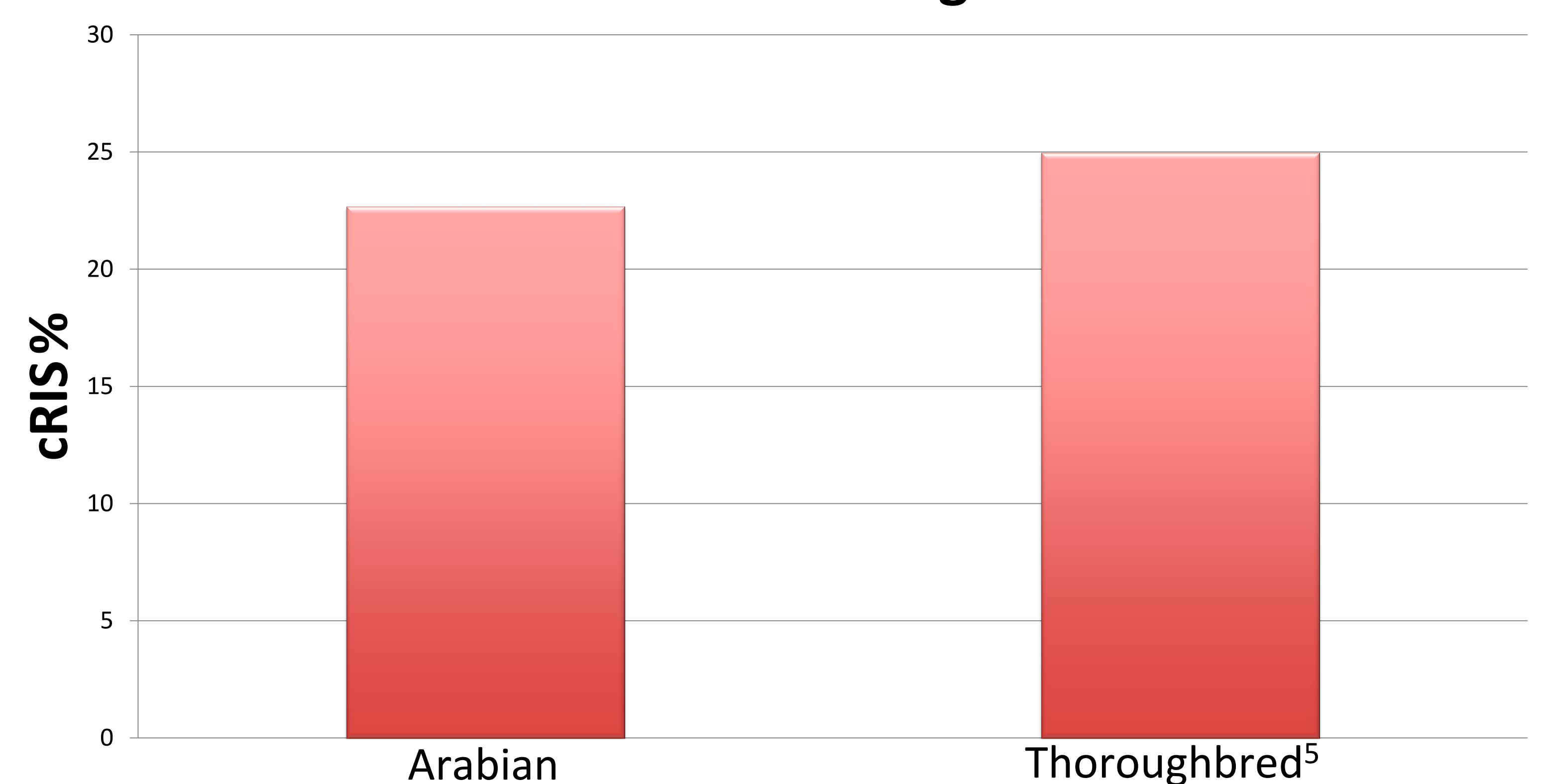
**Methods:** The Arabian colostrum was collected pre-suck and was evaluated using a sugar refractometer and results recorded<sup>3</sup>. The Arabian foals immunity was evaluated by using the Glutaraldehyde coagulation test (GC test)<sup>4</sup>. The data on the Thoroughbreds is from a previous study that used the same method to evaluate the colostrum but used a spectrophotometer to evaluate the foal's immunity<sup>5</sup>.



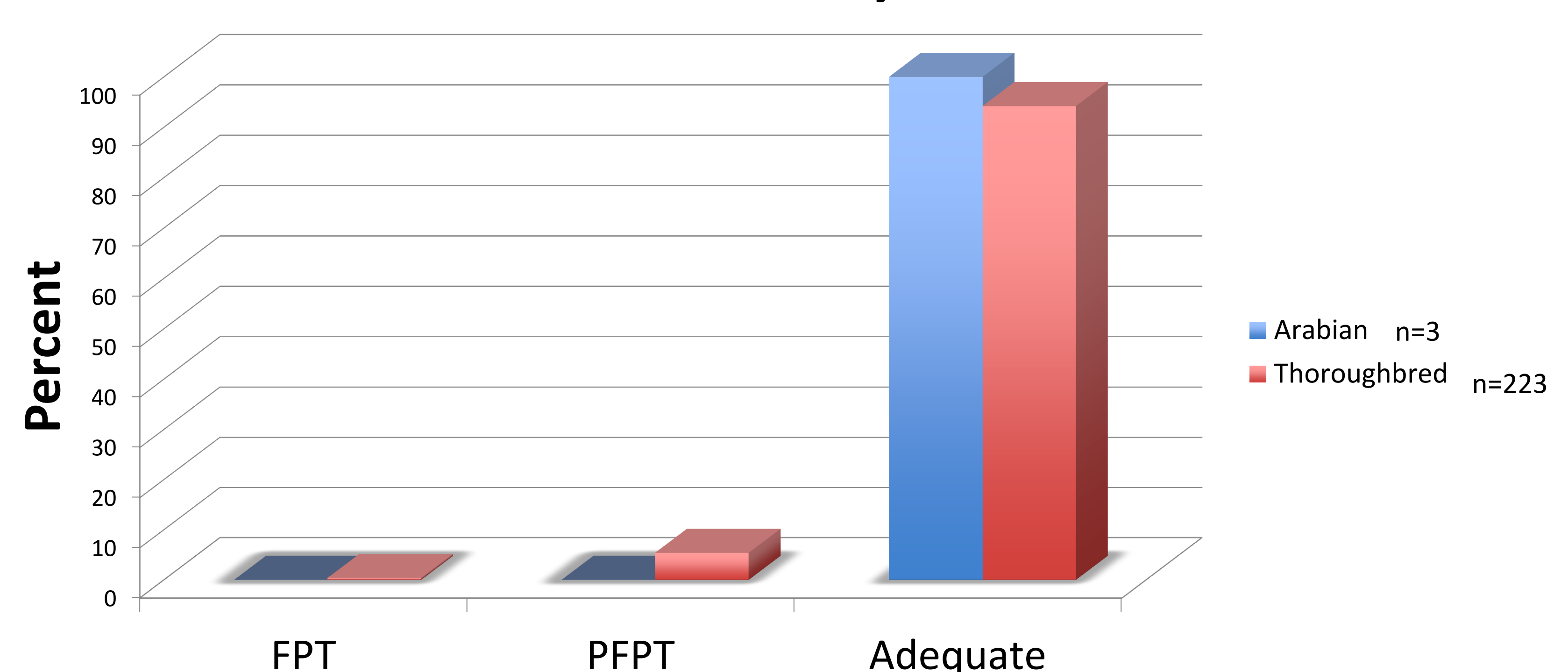
Positive GC test

**Results:**

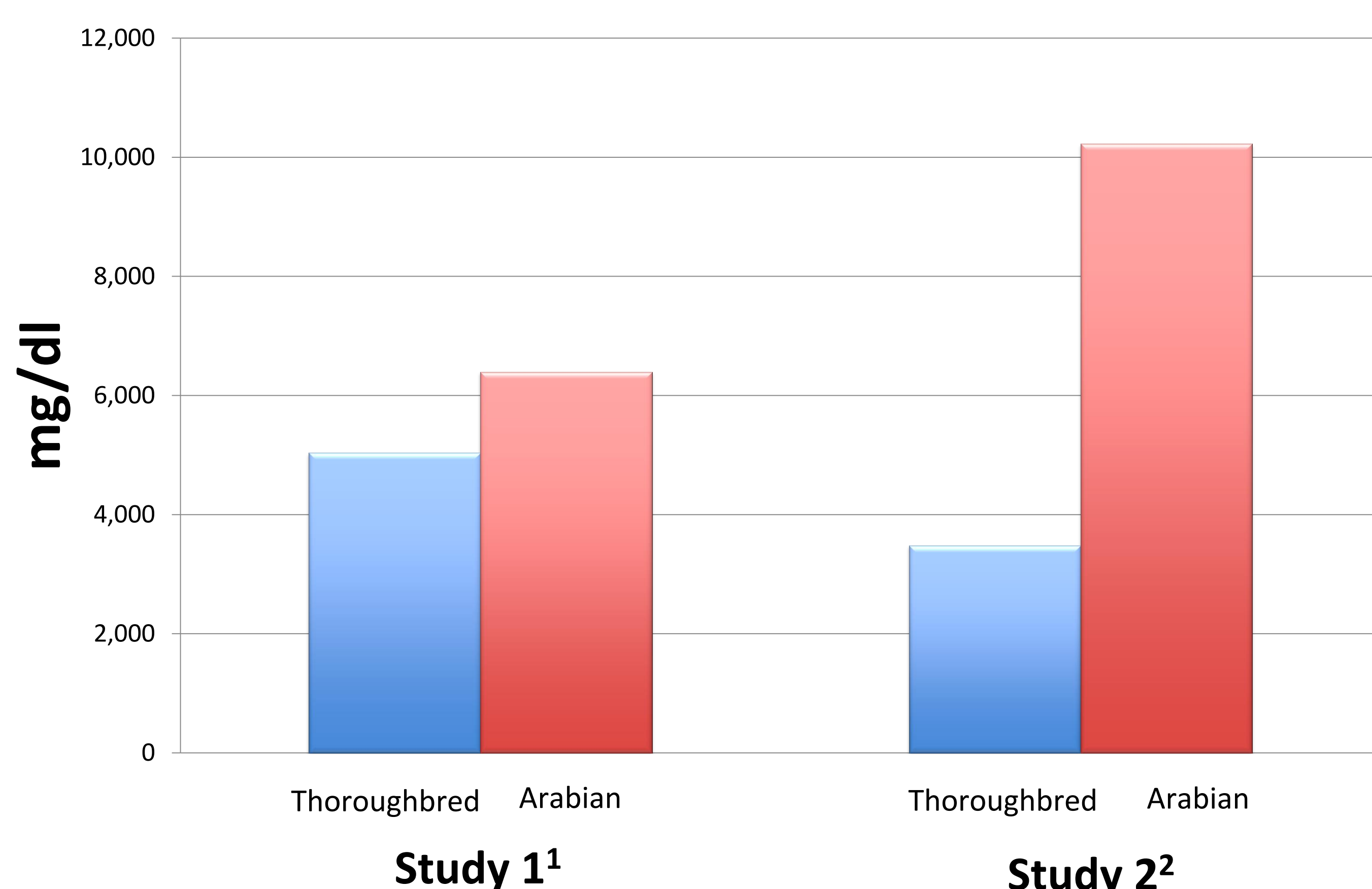
### Colostrum Average



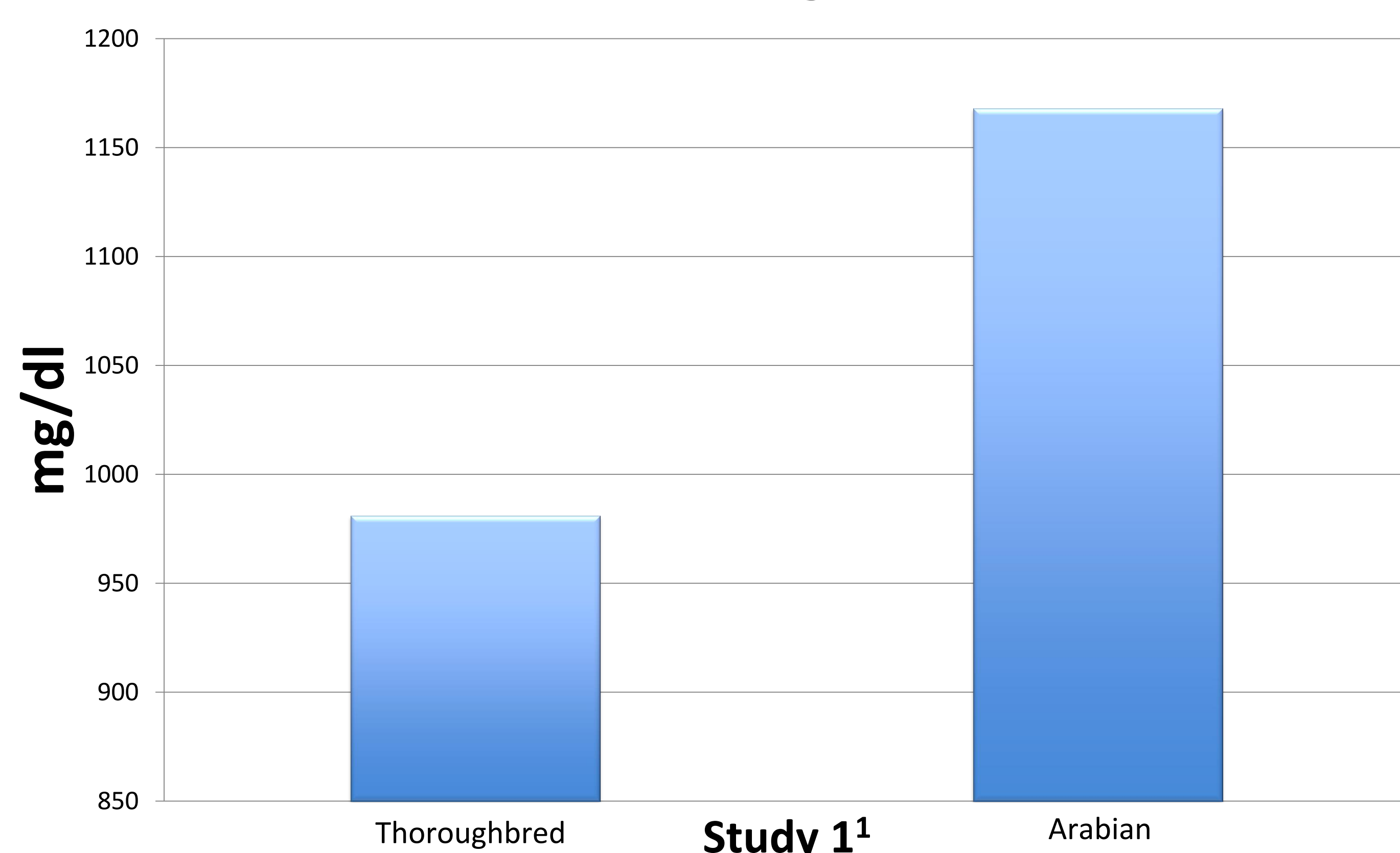
### Foal Immunity



### Colostrum Values (IgG)



### Foal IgG



**In Summary:** The Arabians had a lower average colostrum value (cRIS%) however; the lowest value of the Arabians colostrum was 21 while the lowest value recorded for the Thoroughbreds was 11. The highest value that the Arabians had was 25 while the Thoroughbreds had values reaching 32. Even though the Arabians average value for colostrum was lower than the Thoroughbreds none of the Arabian foals suffered from FPT or PFPT while some Thoroughbred foals did. Therefore, even though the colostrum average for the Arabians was lower than the Thoroughbreds the Arabians were still able to transfer passive immunity more successfully. More studies need to be done because the sample size of Arabians was too small (n=3) for the results to be statistically significant.

#### References:

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