Mastitis can be characterized by inflammation of the mammary gland and udder tissue due to an induced immune response to bacterial infection. Milk Somatic Cell Count (SCC) is a common diagnostic for mastitis cases. Variation among cases can be attributed to both genetic and environmental effects. It is difficult to assess the true prevalence of mastitis infection in U.S. dairy herds given the wide range of causes and large number of subclinical cases.

**STUDY DESIGN**

- **Sample 1**
  - Sample 2
  - Sample 3
  - Sample 4
  - Sample 5
  - Sample 6
  
<table>
<thead>
<tr>
<th>Time (DIM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>3-5</td>
</tr>
<tr>
<td>10-14</td>
</tr>
<tr>
<td>50-60</td>
</tr>
<tr>
<td>90-110</td>
</tr>
<tr>
<td>210-230</td>
</tr>
</tbody>
</table>

- **DISCUSSION & FUTURE DIRECTIONS**
  - Current Research
    - Epidemiology: mastitis prevalence, relative risk, and odds ratios associated with the described phenotypes
    - Microbiome: influence on observed epidemiological trends
  - Future Research
    - Genetics: identify markers related to mastitis and use these markers to differentiate mastitis resistant or susceptible cows
      - Phenotypic assessment of mastitis (udder and teat characterization, SCC, clinical mastitis, microbiome)
    - Analysis Considerations
      - Figure 2 was created using all cows in data set. To identify significant trends it will be appropriate to stratify animals by factors like lactation, parity, farm, production level, etc.

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