

Biology 103 Laboratory Exercise – DNA Profile # 1

A Mix-up at the Hospital

Introduction

On the same day at approximately the same time in Riverside General Hospital, Mrs. Sanders, Mrs. Greene, and Mrs. Hall each delivered a healthy baby girl. Shortly after the deliveries, a hospital fire alarm sounded. Along with other patients, nurses rushed the three new baby girls to safety. After the danger had passed and calm had been restored, a new situation began to unfold. The hospital staff realized that in the confusion of the evacuation, information for the three new baby girls had not been yet been cataloged. Since the three new baby girls had been rushed from the hospital before receiving their identification bracelets, there was no easy way to identify them. DNA typing was ordered for each of the baby girls, and additionally, for each of the three sets of parents.

The DNA typing technicians isolated two different highly variable chromosomal regions for each individual tested. The DNA profiles are shown below. For this lab exercise, your task will be to determine which baby girl belongs to which set of parents.

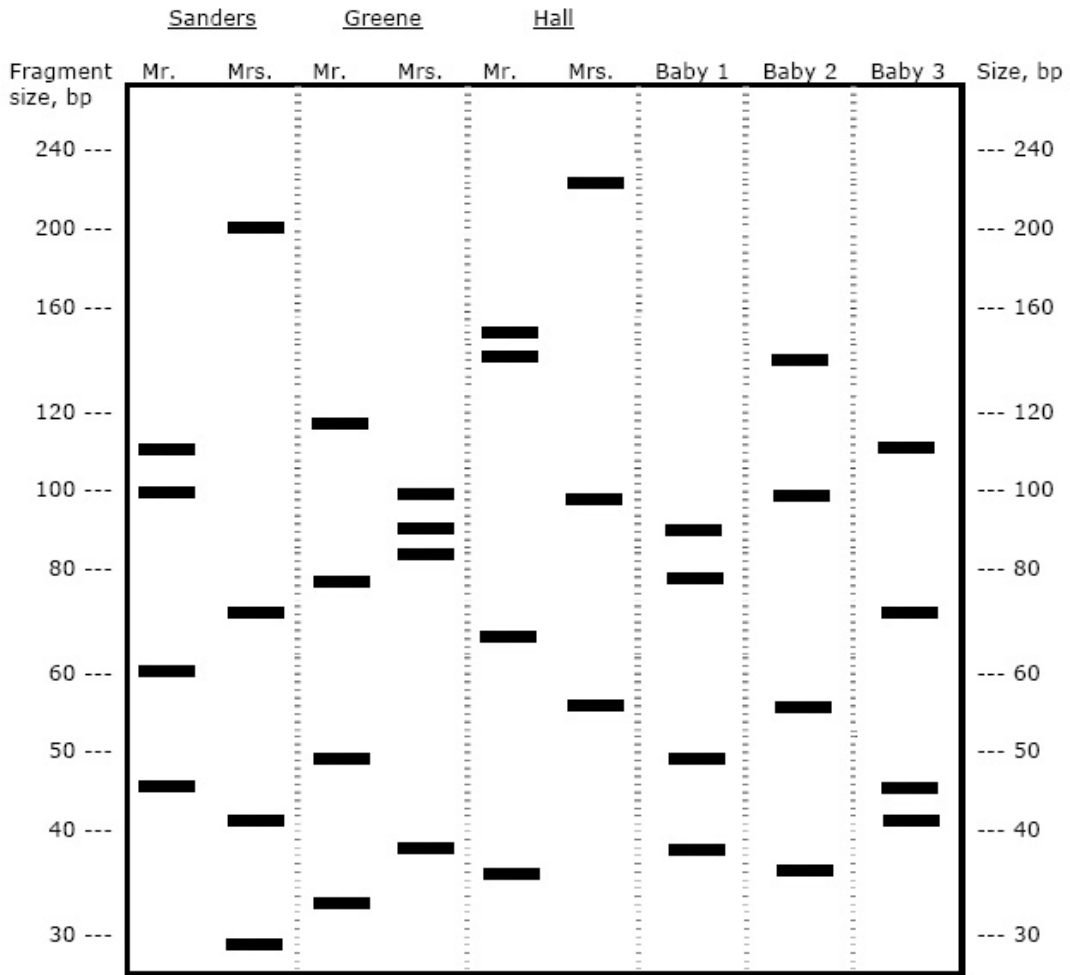
Materials Needed

Ruler
Pencil or pen

Procedure

1. To assign a baby girl to a specific set of parents, every band in the baby girl's DNA profile should match a band from either the mother or the father. Not all of the bands in the mother's or father's profile will have a counterpart in the baby's DNA profile. Use a ruler to help you line up the bands.
2. Determine which bands each baby girl inherited from its mother and from its father by marking the bands with either M (mother) or F (father).
3. Identify the parents of each baby girl.

DNA profile data from the Sanders, Greenes, and Halls and the three baby girls.



Analysis

1. Which baby girl belongs to Mr. and Mrs. Sanders?

2. Which baby girl belongs to Mr. and Mrs. Greene?

3. Which baby girl belongs to Mr. and Mrs. Hall?
