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**Principles and Practice of Agarose Gel Electrophoresis**

Data Table: Data Table 1: Distance Traveled by Bands of Each Sample

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **Band 1: Distance Traveled (cm)** | **Band 2: Distance Traveled (cm)** | **Band 3: Distance Traveled (cm)** | **Band 4: Distance Traveled (cm)** |
| A | +3 |  |  |  |
| B | +2.5 |  |  |  |
| C | +2.2 |  |  |  |
| D | +1 |  |  |  |
| E | +1 | +2 | +2.3 | +3.1 |
| F | +1 | -3 |  |  |

Graph:

Analysis: Well E had 4 bands of different colors and Well F had 2 bands of different colors. However, the two wells had similar bands, both being blue bands that traveled 1 cm. This suggests that, while the two wells had mixtures of different pigments, both wells contained the same blue dye. In addition, one band of Well F traveled -3 cm, and it was the only band to travel in a negative direction. This means that this band was the only positively charged band, and that all of the other bands were negatively charged and traveled to the positive side.

Summary: Integrated Genetic Solutions (IGS) and Empire City Labs are working to use DNA testing to create customized wellness programs for patients. These programs are unique to each person and tell them what paths to follow for optimal health. IGS doctors will be able to recommend exact amounts of supplements, and the programs also take into account a person’s current lifestyle factors such as divorce. The programs will be used to help with weight loss and physical therapy and will also help doctors to determine what medicines to prescribe. Test patients report more energy, weight loss, less mental fog, and general wellness.

Ethics/Morals: While this technology will improve doctors’ abilities to diagnose and treat patients, some people may feel as if their privacy is being invaded. DNA is generally unique to each person, and some may not wish for their doctors to have such personal information about them. This will be particularly relevant if the technology is implemented on a large scale. In addition, some people may not agree with the recommendations the programs make, even if there is DNA evidence, and this could cause potential controversy over whether or not people should be forced to make choices based on the results of their DNA test or not.

Reflection: This technology should be implemented, but on a smaller scale. The technology would likely be most helpful with patients interested in weight loss and the like, and would also be useful in physical therapy, since these patients would likely be most interested in following set programs to improve their health. The technology is not as practical on a large scale due to cost and the issue of whether or not patients will cooperate. It is probably best to make sure consent from the patient or his/her guardian is obtained before this program is implemented so that privacy issues do not arise.

Works Cited: Werner-Gray, Liana. “New DNA Technology In USA Providing More Accurate Health Results.” *The Huffington Post*, 10 Sep. 2016. Accessed 3 Jan. 2017.