Genome Remodeling in Developmental Time: Algorithms for Ciliates

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In collaboration with:

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representing

Lewis and Clark College, Boise State University, and Gustavus Adolphus College

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So far, most of the work we have done revolves around CDS, and how a ciliate uses CDS to unscramble a specific pattern of DNA for the alpha telomere binding protein.

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Depending on how far along the ciliate is in the unscrambling process, we will get different levels of success for each primer.

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From these final sequences, the primers HCID9, IDJE11, MD36, and MD98 were chosen.

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These reactions take place in a programmable thermal cycler.

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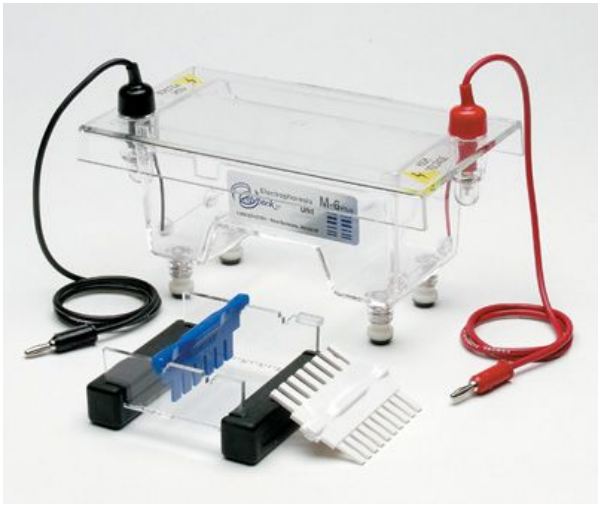

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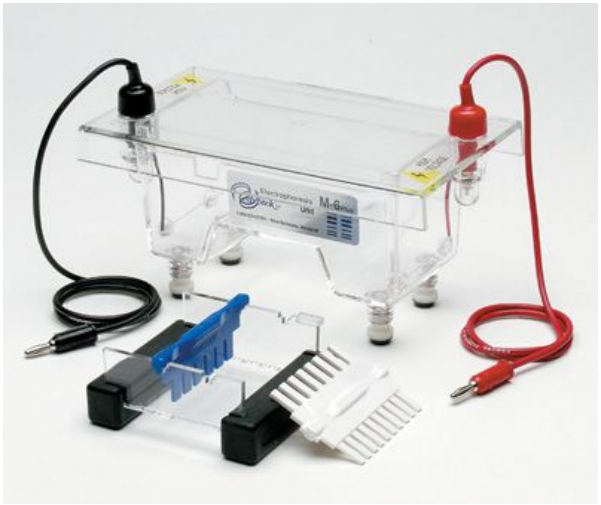

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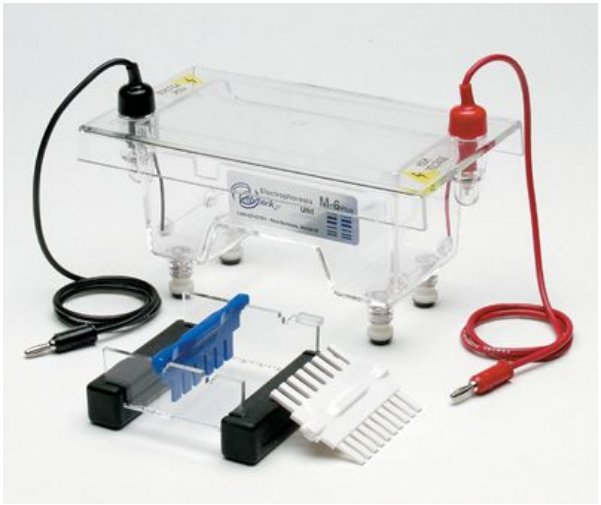

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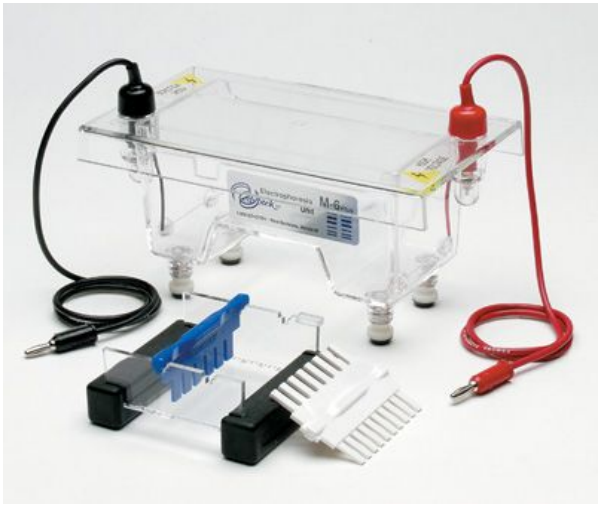

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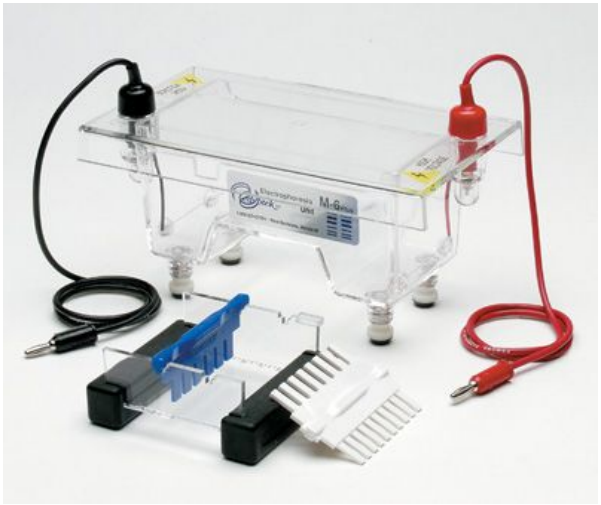

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- Ethidium bromide: binds to DNA, and fluoresces under UV light.

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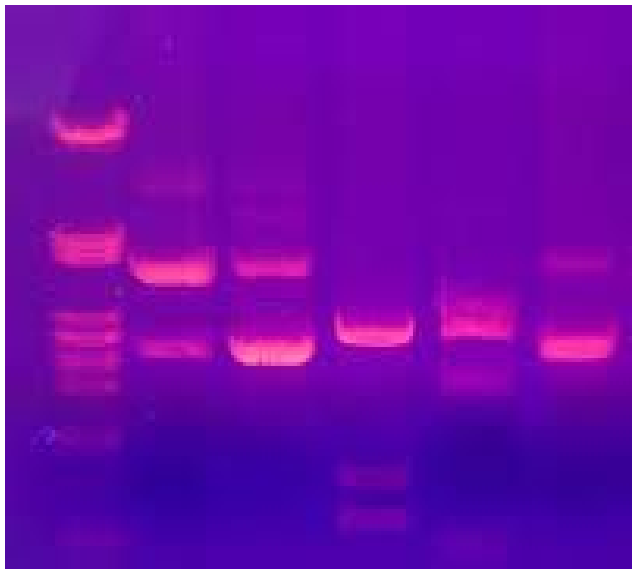

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After the ExoSap is complete, the DNA samples are packaged up and sent to Genewiz for sequencing

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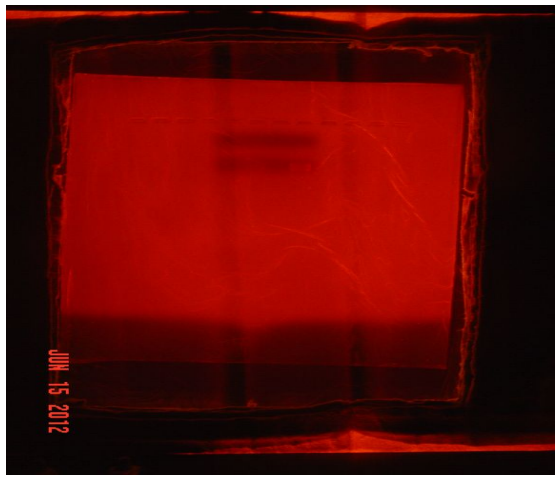

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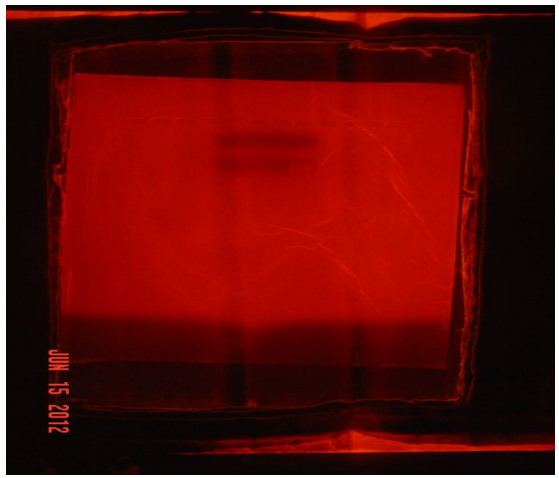

There were problems with the thermal cycler, and to make sure that didn't interfere with our results, we ran PCR for these combinations again.

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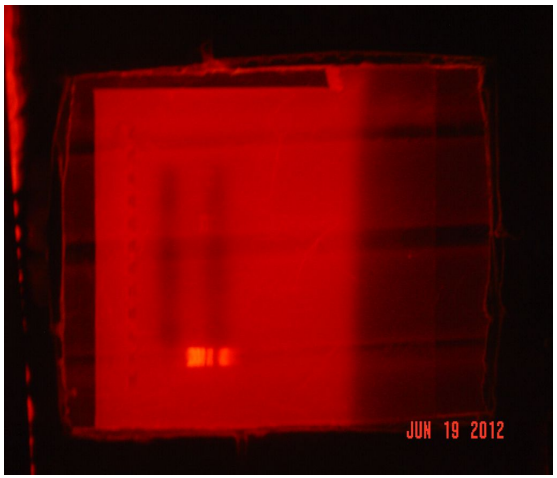

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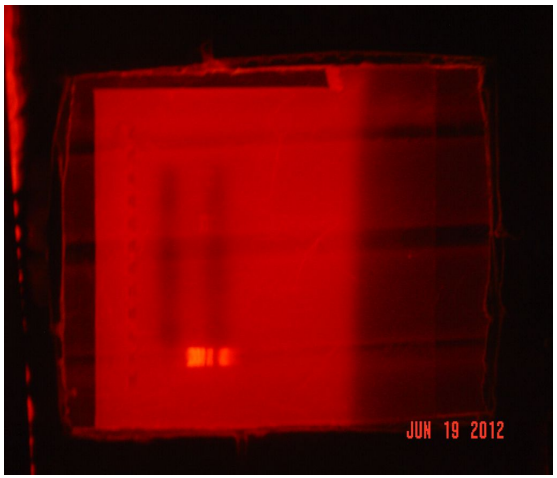

The results for the late DNA this time were inconsistent with the results from the previous PCR, showing no banding in the late DNA. There were faint bands in the middle DNA for primer IDJE11

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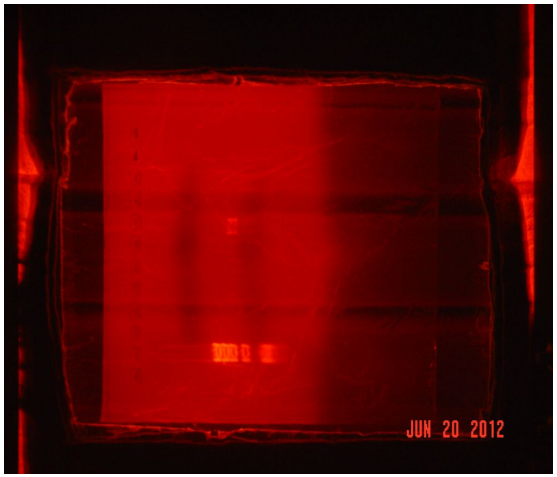

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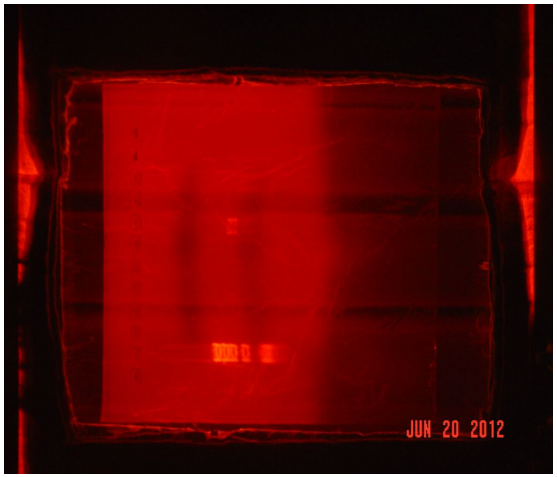

This time, the only notable band was in the 30hr IDJE11 lane.

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Question: Why the encrypted DNA?

Acknowledgements

- Prof. Jim Smith, Boise State University, for consultation and use of his laboratory
- Prof. Hans Lipps and Dr. Franziska Jonnson of the University of Witten/Herdecke, Germany, for a gift of DNA of the ciliate *Stylonychia lemnae*
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