Chapter 1. Custom-Integrated Circuits

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Visiting Scientists and Research Affiliates

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W.M. Keck Foundation

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We also expect to achieve short-term encapsulation of a prosthesis in biocompatible materials and verify using the resistance tests the protection it provides against saline leakage. We believe Mr. Grumet will make good quality *in vitro* recordings of rabbit retina response to electrical stimulation using the new microelectrode arrays he designed and that Mr. Shire will fabricate. We expect Mr. Lichtenstein will complete a working graphics-driven stimulation system for use in subsequent human trials. Mr. Grumet will present a poster session at a major conference (ARVO) on his work, and Mr. Kelly will complete his M.S. thesis on the stimulator for human trials. We expect that Mr. Shire will overcome the final difficulties and deliver iridium arrays with very few short circuits, open circuits, or surface metal cracks for use in future human experiments.

1.2.4 Meeting Papers

Grumet, A.E., J.L. Wyatt, and J.F. Rizzo. “Multi-Electrode Recording and Stimulation of the Salamander Retina *in vitro*.” Paper presented at the Association for Research in Vision and Ophthalmology Annual Meeting (ARVO), Ft. Lauderdale, Florida, May 1998.

Grumet, A.E. “Short Pulses, Small Electrodes, Low Currents Directly Stimulate Rabbit Retinal Ganglion Cells.” Paper presented at the 29th Annual Neural Prosthesis Workshop, Bethesda, Maryland, October 28-30, 1998.

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We also expect to achieve short-term encapsulation of a prosthesis in biocompatible materials and verify using the resistance tests the protection it provides against saline leakage. We believe Mr. Grumet will make good quality *in vitro* recordings of rabbit retina response to electrical stimulation using the new microelectrode arrays he designed and that Mr. Shire will fabricate. We expect Mr. Lichtenstein will complete a working graphics-driven stimulation system for use in subsequent human trials. Mr. Grumet will present a poster session at a major conference (ARVO) on his work, and Mr. Kelly will complete his M.S. thesis on the stimulator for human trials. We expect that Mr. Shire will overcome the final difficulties and deliver iridium arrays with very few short circuits, open circuits, or surface metal cracks for use in future human experiments.

1.2.4 Meeting Papers

Grumet, A.E., J.L. Wyatt, and J.F. Rizzo. “Multi-Electrode Recording and Stimulation of the Salamander Retina *in vitro*.” Paper presented at the Association for Research in Vision and Ophthalmology Annual Meeting (ARVO), Ft. Lauderdale, Florida, May 1998.

Grumet, A.E. “Short Pulses, Small Electrodes, Low Currents Directly Stimulate Rabbit Retinal Ganglion Cells.” Paper presented at the 29th Annual Neural Prosthesis Workshop, Bethesda, Maryland, October 28-30, 1998.