Identification of a Novel Mutation in the Gene for Bone Morphogenetic Receptor Protein II (BMPR2)

in an Israeli Patient with Familial Primary Pulmonary Hypertension

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Background: Primary pulmonary hypertension is a rare disorder, characterised by progressive pulmonary hypertension and right heart failure. It may be familial or sporadic. Mutations in Bone morphogenetic protein receptor II, a member of the TGFb superfamily of receptors underlie many cases of the familial and sporadic disorder.

Objectives: To identify the genetic defect in a patient with familial primary pulmonary hypertension.

Methods: DNA was extracted from 10ml whole blood, and the gene for BMPR-2 was screened for mutations. The exons were amplified by separate PCR reactions and sequenced with the Genetic Analyzer ABI Prism 310. Mutation was confirmed by restriction enzyme digestion.

Results: A novel mutation was identified in exon 2 of the BMPR-2 gene causing substitution of cysteine by arginine. The cysteine is highly conserved in the TGFb superfamily.

Conclusions: The genetic mutation underlying the patient's disorder has been identified. It is now possible to perform screening of family members to identify those at risk for developing disease in the future. We plan to carry out genetic characterization of all PPH patients in Israel to allow for early identification and treatment of patients at risk of developing this devastating illness.