

**PERELMAN School of Medicine  
University of Pennsylvania**

**Object: Report to Dr. Roberto Bufo and the Italian POHA – June-December 2010**

Research investigations dedicated to finding the cause and establishing a cure for POH are conducted at the University of Pennsylvania School of Medicine (Philadelphia, PA, USA) with the support of the Progressive Osseous Heteroplasia Association. Initial investigations to understand POH are noted with the first report of POH as a distinct clinical disorder of heterotopic ossification in 1994. In 1996, the first POHA grant was awarded to study the molecular basis of POH. In 2002, we reported our discovery of the mutation that causes POH in the *GNAS* gene.

Current studies that are supported in part by the Italian POHA are:

1. Evaluation of the DNA sequence of the *GNAS* gene in patients who have received a clinical diagnosis of POH. These studies investigate the correlation between clinical presentation and specific gene mutations as well as increase our understanding of the range of mutations that cause POH.
2. Investigations of the role of the *GNAS* gene in directing the fate of cells to become bone. Understanding the cellular and molecular pathways in bone formation that are controlled by *GNAS* gene products will help us develop treatments for patients with POH and also for more common diseases of bone formation.

**Financial Report:**

	Spent to Date	Encumbered	Total
POH Postdoctoral Researcher	6,989	12,430	19,419
Equipment – PCR Thermal cycler		5,500	5,500
Overhead	629	1,614	2,243
<b>Total</b>	<b>\$7,618</b>	<b>\$19,544</b>	<b>\$27,162</b>

The PCR thermal cycler is a heavily used piece of equipment that is required for the analysis of DNA samples for DNA sequence analysis of the *GNAS* gene (Project #1 above). Funds from the Italian POHA are used for 50% of the costs of an instrument.

Funding from the Italian POHA is used for partial support of a postdoctoral researcher (Jan-Jan Liu, PhD) for studies on the effects of *GNAS* mutations on cell fate decisions (Project #2 above).

Respectfully

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