Perelman School of Medicine
University of Pennsylvania

Eileen M. Shore, Ph.D.

Report to Dr. Roberto Bufo and the Italian POHA – December 2011

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 were 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 differentiation of cells. Our recent studies support that the heterotopic bone formation in POH arises from a progenitor cell population that is diverted from an adipocyte fate. Understanding the cellular origins 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.

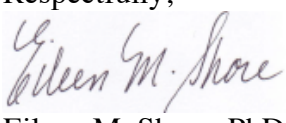
Financial Report (July-December 2011):
Funds received: 23,000 euros (= $32,048)

	Received	Spent to Date	Balance
POH Postdoctoral Researcher		18,532	
Overhead		1,668	
Total	$32,048	$20,200	$11,848

In 2011, funding from the Italian POHA was used for partial support for a Research Specialist to conduct DNA sequence analysis (Project #1 above) and for support of a postdoctoral researcher (Jan-Jan Liu, PhD) for studies on the effects of *GNAS* mutations on cell fate decisions (Project #2 above). The remaining funds will continue to support these projects in 2012.

Funding through the Italian POHA has been important in continuing to reach a better understanding of POH that will lead to therapeutic options. The support of the IPOHA is greatly appreciated.

Respectfully,



Eileen M. Shore, PhD
Professor of Orthopaedic Surgery and Genetics
Perelman School of Medicine at the University of Pennsylvania
424 Stemmler Hall, 3450 Hamilton Walk
Philadelphia, PA 19104-6081
email: shore@mail.med.upenn.edu