

# FOP Connection Registry

## First Annual Report for Participants

*Data from the Patient, Parent  
and Caregiver Perspectives*

*July 29, 2016*



*Empowering Individuals  
and the FOP Community*

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*Front Cover: The countries colored in green represent the countries that are represented in the FOP Connection Registry.*

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First and foremost – **THANKYOU** to each of the individual **178** FOP Connection Registry patients, parents, and caregivers who made the Registry’s first year so successful! Your extraordinary efforts to enroll in the Registry and provide valuable health information are greatly appreciated. This First Annual Report for Participants will share with you several pieces of aggregate data from the Registry, as well as highlight the Registry’s major milestones and achievements that *you* made possible and how, together, the FOP community is making a difference.

When the International FOP Association (IFOPA) launched the first phase of the FOP Connection Registry – the patient portal – on July 29, 2015, our goals were modest. We hoped to begin assembling the unique stories of every individual living with fibrodysplasia ossificans progressiva (FOP) in order to better understand the disease characteristics and progression over time from the patient’s perspective. More specifically, the research objectives as stated in the FOP Connection Registry protocol are:

- to organize the international FOP community for potential participation in clinical trials or other research studies;
- to enable FOP patients worldwide to report data on their own disease state in a shared forum, ultimately empowering both individual patients and the community as a whole;
- to improve the collective understanding of FOP natural history and its functional, emotional, and psychological impact over time;
- and when treatments are available, to advance the understanding of FOP treatment outcomes.

In addition to these research objectives, the IFOPA’s overarching goal for the FOP community is to have *one* coordinated and shared registry program that will benefit *all* FOP patients, clinicians, physician researchers, and the biopharmaceutical industry. The FOP Connection Registry was designed and built to

achieve this goal. We hope this First Annual Report for Participants from the Registry will illustrate how the IFOPA and the FOP community are standing alongside the worldwide leaders in FOP research and working toward safe and effective treatments for FOP.

### About the FOP Connection Registry

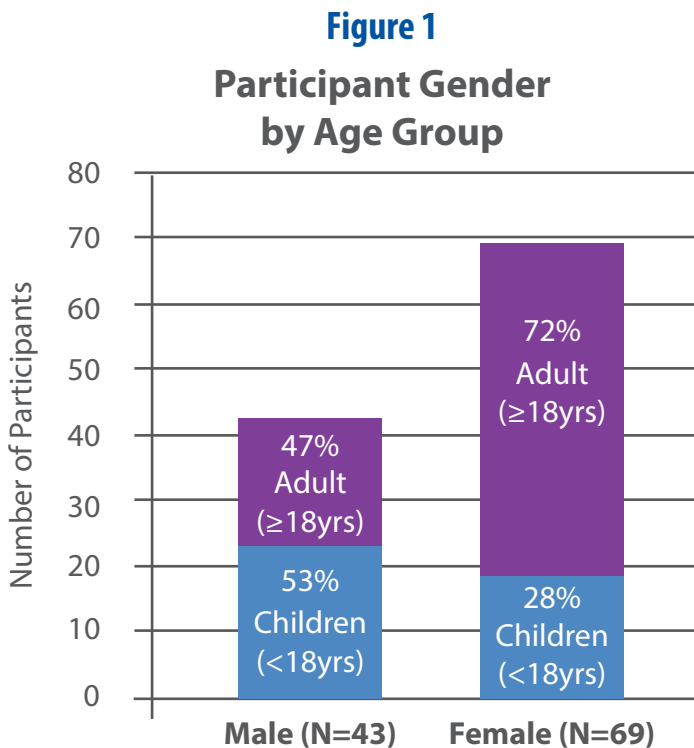
- The Registry is an international database that collects demographic and health data from individuals living with FOP worldwide using a secure web-based survey tool.
- The Registry is sponsored by the IFOPA and is open and available to all individuals and families living with FOP worldwide, regardless of whether you consider yourself an “IFOPA member”.
- The Registry is guided by a protocol and informed consent that have been approved by an ethics committee.
- The Registry was first launched in English and is being translated into six to eight other languages.
- The first phase of the Registry, the patient portal, is open to patients and caregivers. The second phase of the Registry, the medical portal, will be open for clinicians to share data about FOP patients under their care.

## Participant Demographics – A Truly Global Community

One short year later, and thanks to the commitment from you, the FOP community, the FOP Connection Registry is well on its way toward achieving its objectives. As of July 29, 2016, there were **178** individuals with FOP enrolled in the Registry from **34** countries ([Appendix 1](#)), illustrating the power of a global registry for a rare disease. For this report, we were able to assemble information from the Enrollment Surveys from 117/178 (66%) of the Registry participants and present some key findings. It

is important to note that all findings were developed from pooled Registry data. Individual data from any specific patient are not reported. Your personal information that you provided during the registration process, such as your name and contact information, will remain private and not shared outside the Registry without your permission. Only several, designated Registry team members have access to your personal information to assist you with technical issues or to follow-up on any data questions.

The Registry participants represent a wide range of ages, from one-year old to 72-years young, with an average age of 25 years. At 62% of the Registry population, females make up the majority of Registry participants. Among all female participants, 28% are children (age less than 18 years old), while 53% of all male participants are children (Figure 1). This suggests that adult men may be underrepresented in the Registry, so we need your help to encourage FOP men to participate. Please share your Registry experiences with FOP men and let them know we need their data to make sure the FOP puzzle is complete across all ages and genders.

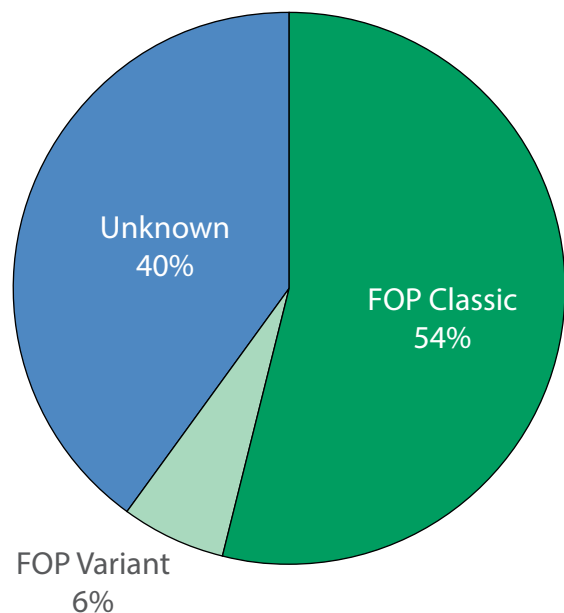


**DID YOU KNOW?**

Researchers report the “N” in their charts in order to confirm for the reader how many participants in total provided data for the calculations. In Figure 1, data from 43 male participants and 69 female participants were used to create the bar graphs. Understanding the “N” is important when interpreting the results from the data.

One hundred twelve participants provided information about their FOP Type (Figure 2). Fifty-four percent of participants reported FOP Classic while 6% reported FOP Variant. Forty percent of participants reported their FOP Type as unknown, perhaps suggesting that for some, their FOP was diagnosed before the genetic test was available and these individuals were never tested.

**Figure 2**  
**FOP Type (N=112)**



**DID YOU KNOW?**

The FOP gene – ACVR1 – was discovered in April 2006 by the FOP research team

at the University of Pennsylvania School of Medicine and their international research collaborators. Soon after, a genetic test for the ACVR1 gene mutation was developed, which led to accurate diagnoses of FOP. This milestone marked a significant step forward in the treatment of FOP patients and in FOP research.

## Contributing Your FOP Story

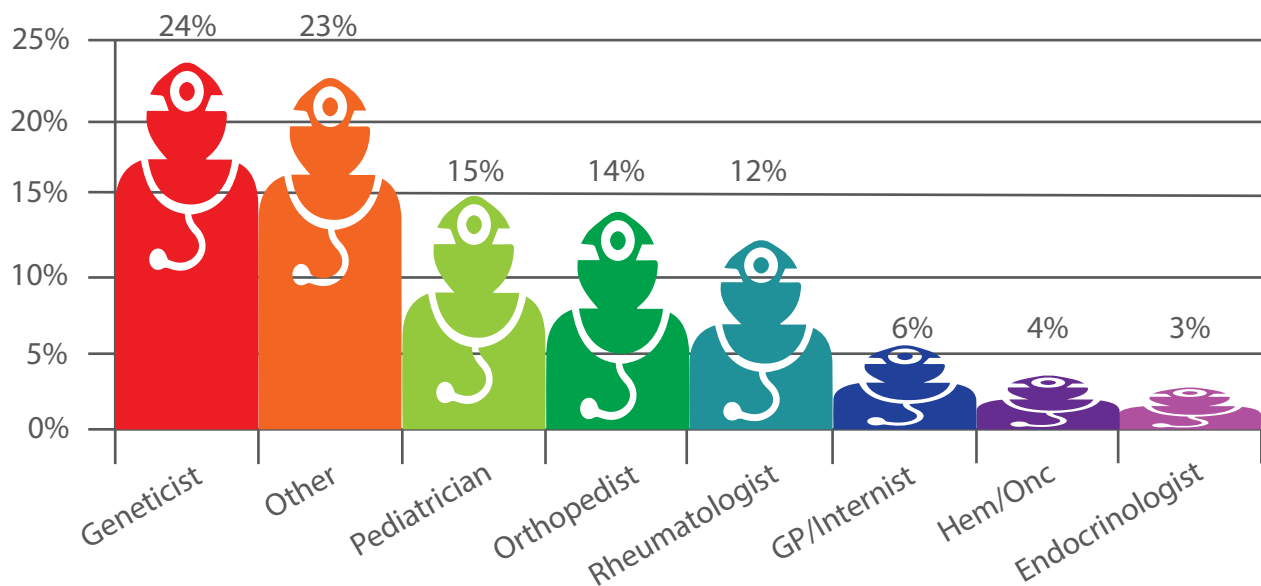
Many individuals with FOP share a long and confusing path before receiving a correct FOP diagnosis. The Registry collects your diagnosis information and we will be looking into these data more closely to see if diagnostic journeys change over time and to compare participants' experiences across different countries. One hundred six participants provided information on what physician specialty, in the end, provided their correct FOP diagnosis (Figure 3). Geneticists were the

most often reported medical specialty that ultimately provided a correct FOP diagnosis, but pediatricians, orthopedists, and rheumatologists also played important roles. Interestingly, 23% of participants reported "other", indicating that they did not know the physician specialty or provided the specific name of the physician who made the final, correct diagnosis. Understanding the diagnostic journey is critical as the FOP community evaluates communication and training strategies to improve FOP awareness, diagnosis, and treatment.

As many individuals with FOP can attest, new bone growth and loss of joint mobility are the most debilitating characteristics of FOP and are often the most discussed among physicians and FOP researchers. However, we also want to collect and share with researchers some FOP characteristics that are perhaps not as often talked about, but which may, nevertheless, have a significant impact on your patient experiences and general quality of life. Therefore, the FOP Connection Registry collects information on other aspects of your health that may also impact your daily lives.

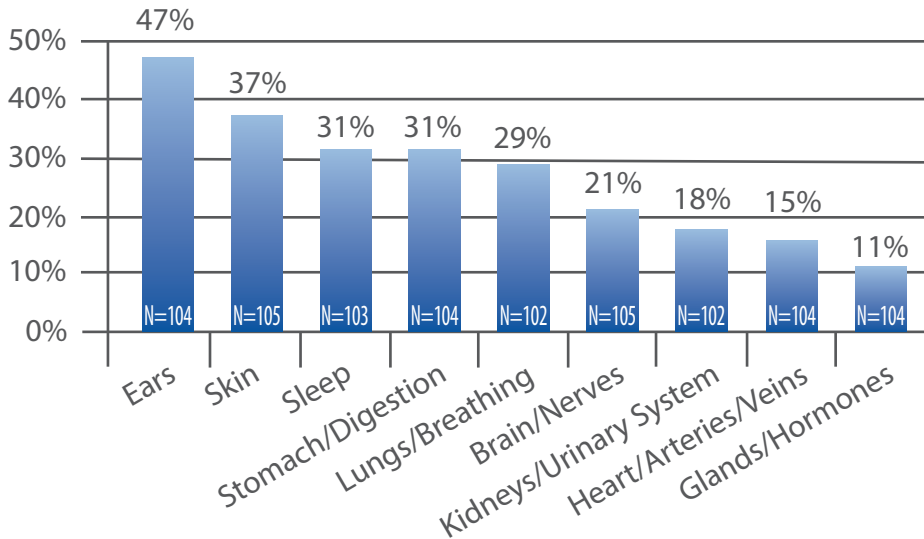
Figure 3

### Physician Specialty Who Made Correct FOP Diagnosis (N=106)



Notes: GP = General Practitioner; Hem/Onc = Hematologist/Oncologist

**Figure 4**  
**Other FOP Signs and Symptoms**



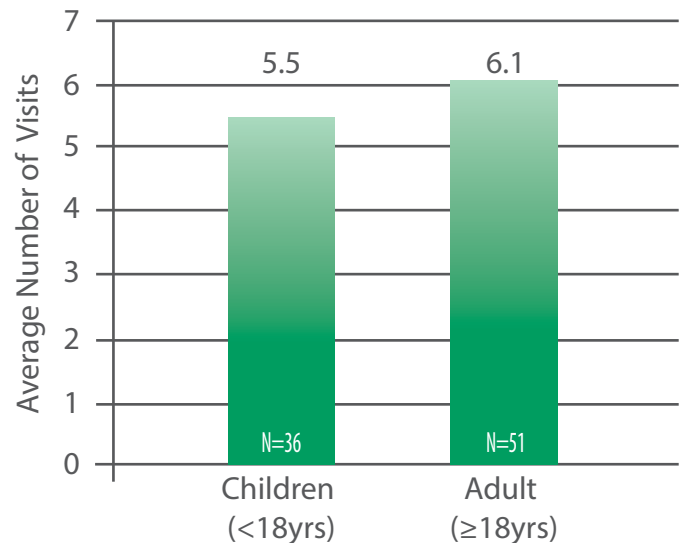
Among participants providing information about other FOP signs and symptoms (Figure 4), the most commonly reported signs were symptoms related to the ears (47% of responding participants), followed by symptoms related to the skin (37%), sleep (31%), stomach and digestion (31%), and lungs and breathing (29%). These data suggest that FOP may affect many different body systems, which provide you, your physicians, and FOP researchers with important insights on more holistic approaches to drug research and to treating your FOP.

Managing your FOP often requires regular visits to your doctor, as well as unplanned visits to treat unpredictable events like flare-ups. Among the 91 participants who reported at least one visit to the doctor for their physical health in the 12 months prior to enrolling in the Registry, the average number of doctor visits was 5.8 times, with two participants having greater than 25 doctor visits! If we explore whether there is a difference between children (age <18 years old) and adults (≥18 years old), we do not see a large difference in the average number of doctor visits for physical health reasons between these two age categories (Figure 5). Twenty-five participants reported going to the doctor for their mental or emotional health in the 12 months prior to enrolling

in the Registry. Among these 25 participants, the average number of doctor visits was 9.5 with a range of one visit to 60 visits. Finally, among the 25 participants who reported at least one hospital admission in the 12 months prior to enrolling in the Registry, the average number of hospital admissions was 2.8, with a range of one admission to 14 admissions. Several common reasons for these hospital admissions included respiratory infections, falls or other injuries, dental procedures, and surgical procedures. These data illustrate the additional burden that managing FOP can place on individuals with FOP, their families,

and caregivers, all of whom may have to miss school or take time off from work. Many health policy researchers will be interested to study if a new drug for FOP not only treats the symptoms of the disease, but also reduces this additional burden related to the use of health care services like doctor visits and hospital admissions.

**Figure 5**  
**Doctor Visits - Physical Health**  
**12 Months Prior to Enrolling**  
**in the Registry**





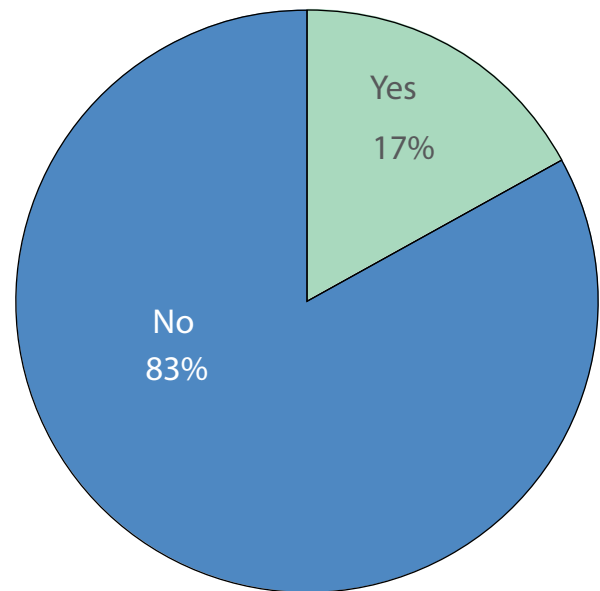
## DID YOU KNOW?

According to Marin Wallace, FOP community member in Canada, the head of the Canadian Organization of Rare Disorders (CORD) indicated that data on the use of health care services are extremely valuable when trying to persuade insurers to cover new drugs. This is true for government and private insurers in most countries.

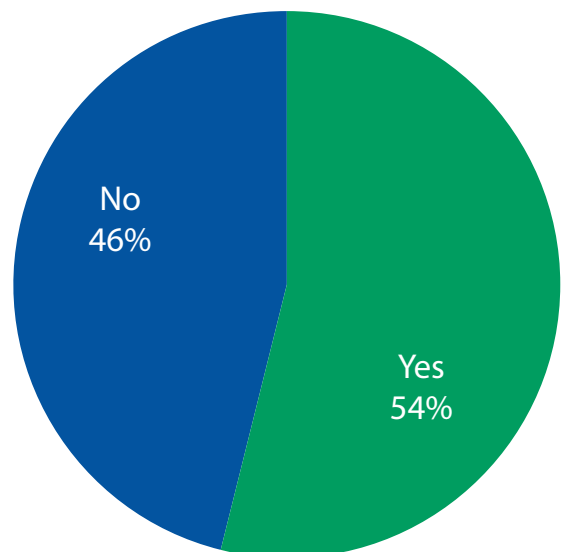
## Contributing to Research Studies

It was exciting to discover that FOP Connection Registry participants are not strangers to participating in other FOP research studies. Seventeen percent of Registry participants reported participating in a past clinical trial, while 54% of Registry participants reported donating a biospecimen (blood or tissue sample) for research purposes (Figures 6, 7). It is imperative that the FOP Community remains actively engaged in research efforts, and the FOP Connection Registry is one easy way to contribute regardless of your age, FOP status, or geography. All individuals with FOP are encouraged to join the FOP Connection Registry. The IFOPA, through the Registry, is actively collaborating with clinicians, physician researchers, and several pharmaceutical companies to share data and to advance research toward a treatment for FOP.

**Figure 6**  
**Participated in a Clinical Trial?**  
(N=108)



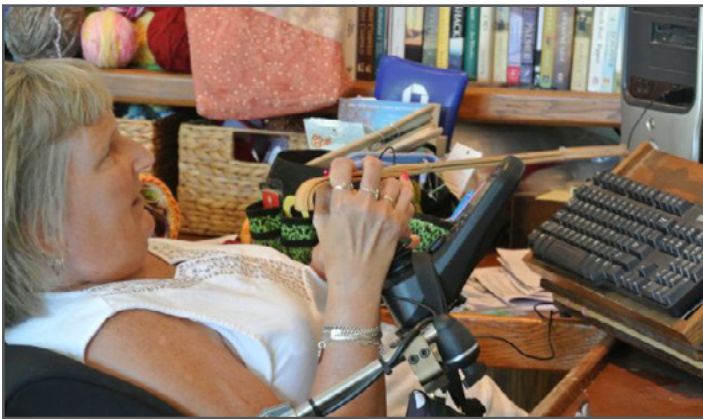
**Figure 7**  
**Donated a Biospecimen?**  
(N=108)



## Milestones and Accomplishments

We are very pleased with the milestones and accomplishments that you helped the Registry to achieve during its first year. Each one is a valuable contribution to the Registry's research mission.

### July 2015



Nancy Sando completing her enrollment survey

After nearly one year in development with our research partner Digital Infuzion, the English version of the FOP Connection Registry's patient portal was launched to the global FOP community. Nancy Sando, a founding member of the IFOPA, was the first FOP individual to complete her enrollment survey after joining the FOP Connection Registry. Thanks, Nancy!

### August 2015

One month after launch, the FOP Connection Registry enrolled its 50th participant.

### September 2015

Within two months after launch, the FOP Connection Registry enrolled its 100th participant.

### November 2015

The FOP Connection Registry was represented at the FOP Stichting Nederland, Amsterdam (Netherlands FOP community meeting). Data from 132 Registry

participants were presented to the attendees. The Registry Medical Board of Advisors ([Appendix 2](#)) also met in Amsterdam to discuss the design of the future Registry medical portal, the role of the Medical Advisory Board and the Registry's governance structure.

### January 2016

Enrollment in the FOP Connection Registry reached 150 participants around the world.

### April 2016

The FOP Connection Registry was represented at the 10th Annual Meeting FOP Italia in Livorno, Italy. The group reviewed pooled data from 165 Registry participants. The Registry Medical Board of Advisors met again to begin planning for the development of phase two of the Registry – the medical portal.

Also in April, the FOP Connection Registry was officially listed on [clinicaltrials.gov](http://clinicaltrials.gov), the official database of the U.S National Institutes of Health (NIH) that lists publicly and privately supported clinical studies of human participants conducted around the world.

### May 2016



Rachel Scott and Neal Mantick with the ECRD poster



The FOP Connection Registry presented its first scientific poster, *The FOP Connection Registry: A Patient Registry Directed by the FOP Community*, at the European Conference on Rare Diseases and Orphan Products in Edinburgh, Scotland. The theme of this year's event was Game Changers in Rare Diseases, which fits well with the goals of the FOP Connection Registry. Rachael Scott, sister of Dylan Scott, and Neal Mantick, Registry Study Manager, were proud to represent the IFOPA and the Registry among leading universities, biopharmaceutical companies, and other patient advocacy organizations at this global conference.

## June 2016

The FOP Connection Registry Patient Advisory Board (Appendix 2) held its first meeting. The Patient Advisory Board will provide the patients' perspective to guide the ongoing implementation and use of the Registry.

Also in June, The FOP Connection Registry presented its second scientific poster, *The FOP Connection Registry: patient reports of heterotopic bone*, at the Bone Research Society Meeting in Liverpool, England. Dr. Richard Keen of the Metabolic Bone Disease Unit at the Royal National Orthopaedic Hospital was on duty to represent the IFOPA and the Registry. Two scientific posters within the first year of operation is a *tremendous* achievement for any registry program!



Dr. Richard Keen with the BRS Meeting poster

## July 2016

The FOP Connection Registry celebrated its one-year anniversary on July 29. One hundred seventy-eight individuals with FOP from 34 countries contributed their FOP histories, which have already proven to be a source of valuable information to both academic and biopharmaceutical researchers.

## Looking Ahead

As we look ahead to an even busier second year of the FOP Connection Registry, we expect global enrollment to increase rapidly as we introduce the Registry in several languages in the latter half of 2016 and into 2017. We will also begin to analyze the follow-up data that you provide every six months to see how your FOP changes over time. The Registry continues to receive enthusiastic support from an international group of clinicians, physician researchers and several biopharmaceutical companies that are now engaged in helping us develop the next phase of the Registry – the medical portal. The Registry's medical portal will collect data from physicians treating individuals with FOP in order to confirm and complement the data submitted by FOP patients in the Registry's patient portal. By collecting FOP information in one database from these two different perspectives – individuals with FOP and FOP physicians – we hope to facilitate the development of medical standards of care that truly reflect patients' needs and dramatically improve treatment outcomes. Finally, we hope to strengthen the Registry's collaboration with the pharmaceutical companies conducting clinical trials in FOP, providing a platform to share data across many studies.

## Conclusion

Congratulations to all FOP Connection Registry participants on a very successful and productive year! The broad range of Registry data that has been gathered to date is priceless to clinicians and FOP researchers and your ongoing participation confirms your shared, global commitment to working alongside

them to advance research toward a treatment for FOP. By assembling your unique stories on how FOP affects you in one registry database, physicians and researchers can better understand FOP clinical characteristics and disease progression among the larger FOP community, which will contribute to the growing research efforts that are focused on bringing new FOP treatments to patients.

As Fred Kaplan, MD, University of Pennsylvania, stated so eloquently in the past, *“The international FOP community is small but mighty and speaks with one voice in one language understandable to all, We want a cure and we need one international FOP patient registry, owned and operated by the FOP patients, to help make that happen. It’s one critical goal we can accomplish together and one critical way we can change our world.”*

Again – THANK YOU! Your continued contributions of your FOP stories every six months are critical for FOP research and greatly appreciated. Together, we can make a difference!

## Appendix 1

### Countries that are Represented in the FOP Connection Registry

Australia	Israel
Austria	Italy
Belarus	Malta
Belgium	Netherlands
Brazil	New Zealand
Canada	Paraguay
Chile	Poland
China	Republic of Macedonia
Colombia	Romania
Denmark	Russian Federation
Estonia	Serbia
Ethiopia	Spain
France	Sweden
Germany	United Kingdom
Greece	United States
India	Uruguay
Iran	Venezuela

## Appendix 2

### FOP Connection Registry Advisory Boards

#### Patient Advisory Board

Oliver Collins (Australia)  
Sharon Kantanie (United States)  
Jelena Milosevic (Serbia)  
Marin Wallace (Canada)  
Nicky Williams (United Kingdom)  
Roger zum Felde (Germany)

#### Medical Advisory Board

##### Academic Advisors

Genevieve Baujat, MD (France)  
Matt Brown, MD (Australia)  
Carmen de Cunto, MD (Argentina)  
Patricia Delai, MD (Brazil)  
Marelise Eekhoff, MD, PhD (Netherlands)  
Nobuhiko Haga, MD (Japan)  
Edward Hsiao, MD, PhD (United States)  
Frederick Kaplan, MD (United States)  
Richard Keen, MB, BS, BSc, PhD, MRCP  
(United Kingdom)  
Rolf Morhart, MD (Germany)  
Robert Pignolo, MD, PhD (United States)  
Maja di Rocco, MD (Italy)  
Christiaan Scott, MBChB, FCPaed (South Africa)  
Keqin Zhang, MD, PhD (China)

##### Pharmaceutical Representatives

Eric Bachman, MD, PhD (Alexion Pharmaceuticals)  
Donna Roy Grogan, MD (Clementia Pharmaceuticals)  
Xiaobing Qian, MD, PhD  
(Regeneron Pharmaceuticals)



*Fund Research, Find A Cure, Support Families.*

