FSH SOCIETY

2018 International Research Congress & Research Planning Meetings

FSH SOCIETY
FACIOSCAPULOHUMERAL MUSCULAR DYSTROPHY

June 8—9, 2018 | Flamingo Hotel & Resort

PREFACE

June 8–9, 2018 | Las Vegas, Nevada

DEAR COLLEAGUES,

Welcome to the FSH Society 2018 International Research Congress & Research Planning Meetings!

This workshop brings together clinicians, scientists, industry and patient representatives, and policy makers to discuss the latest developments in facioscapulohumeral muscular dystrophy (FSHD). For more than two decades, this gathering has provided the FSHD community with a forum to present and discuss new findings, reinforce collaborative efforts, facilitate new initiatives, and coordinate research, therapeutic, and clinical activities.

Exceptional scientific progress has been made in recent years and months in our understanding of the disease. This is a critically important time for the community to convene and discuss new data and advances in FSHD; develop strategies to verify and independently corroborate the findings; discuss focusing efforts and resources in the preclinical gap and translational phase of research; improve diagnostic techniques and criteria for FSHD; and consider and evaluate with industry how to move forward with accelerating new and existing therapies.

Over the two days, we will revisit the priority areas identified at the most recent 2016 meeting and discuss what we have achieved, evaluate the gaps that need addressing, and decide where we need to focus and invest intellectual, scientific, and financial resources. By the end of day two we should be able to identify whether any of the previous year's priority areas should change or be modified, and outline a new list/set of priority areas to be considered.

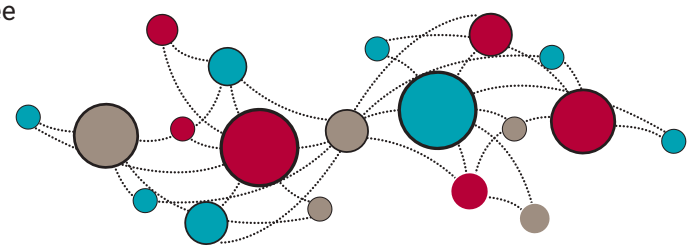
This meeting is organized by the FSH Society and sponsored by Acceleron, Association Français Contre les Myopathies Muscular Dystrophy Association, FSHD Canada Foundation, Fulcrum Therapeutics, Genea Biocells, Genomic Vision, Muscular Dystrophy Association, NIH NICHD UMass Senator Paul Wellstone MD Cooperative Research for FSHD, Sanofi US Services Inc., Ultragenyx, and University of Nevada, Reno. We thank our sponsors for their generous financial support.

Friday platform and poster presentations are considered confidential scientific presentations that contain unpublished data and should not be photographed or incorporated in newsletters or used in any other manner without the permission of the reporting scientists. There is an assumption of confidentiality for Saturday's discussions as in other scientific meetings. Saturday's discussion will be recorded as in past years to help generate a full set meeting transcripts.

It is truly a pleasure to come together to accelerate solutions for FSHD. Thank you for your extraordinary efforts and hard work on behalf of patients and their families.

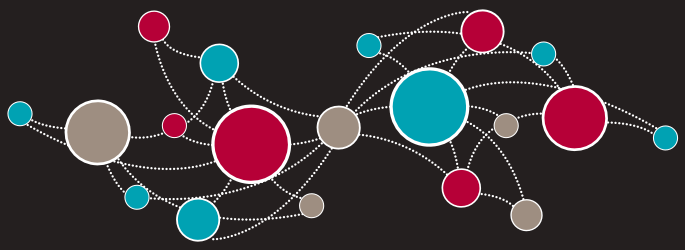
Sincerely,

Members of the 2018 IRC Meeting Organizing Committee
Daniel Paul Perez, *FSH Society,*



Wifi network: FSH Society
Password: curefshd

SCHEDULE



Friday, June 8, 2018—El Dorado Ballroom

BREAKFAST
7:00–7:55 a.m
El Dorado Ballroom Foyer & Carson City Ballroom

WELCOME
7:55 8:00 a.m.
Opening remarks
James Chin, Mark Stone, *2018 IRC Meeting Organizing Committee*

REVIEW OF 2017
8:00–8:10 a.m.
Review 2017/2018 priorities stated by FSHD workshop in 2016
Moderators: Michael Altherr, Stephen Tapscott, others TBD

PLATFORM SESSION 1—8:10–9:25 a.m.
Genetics, epigenetics, and related syndromes and diseases, cancers, and BOSMA Arhinia)
Moderators: Silvère van der Maarel and Marnie Blewitt

8:10–8:25 a.m.
Brand (presenter)/Talkowski: **Lessons in oligogenetics and pleiotropy: identical SMCHD1 alleles can be associated with arhinia, Bosma syndrome, FSHD2, comorbidities, or no phenotype at all**

8:25–8:40 a.m.
Mohassel/Shaw (presenter): **Deep neuromuscular phenotyping of arhinia patients with SMCHD1 mutations reveals a mild myopathy distinct from FSHD2**

8:40–8:55 a.m.
Jansz/Blewitt (presenter): **The epigenetic repressor, FSHD2 gene and FSHD1 modifier SMCHD1 functions by mediating long range chromatin interactions**

8:55–9:05 a.m.
Nguyen/Magdinier (presenter): **Genetic variability and identification of complex genotypes in FSHD patients by molecular combing**

9:05–9:15 a.m.
Lemmers (presenter)/van der Maarel: **Cis D4Z4 repeat duplications associated with FSHD2**

9:15–9:25 a.m.
Campbell (presenter)/Tapscott: **Identifying mechanisms that regulate DUX4 and the D4Z4 macrosatellite repeats**

9:25–9:35 a.m.
Discussion

PLATFORM SESSION 2— 9:35 11:00 a.m.
The role of DUX4 in development and disease
Moderators: Peter Zammit and Stephen Tapscott

9:35–9:45 a.m.
de Morrée (presenter)/Rando: **U1 snRNA controls alternative polyadenylation of Pax3 in muscle stem cells**

9:45–10:00 a.m.
Banerji (presenter)/Zammit: **Dynamic transcriptomic and morphological analysis of FSHD atrophic myogenesis reveals a correctable defect in mitochondrial biogenesis**

10:00–10:15 a.m.
Kyba (presenter)/Aihara: **Structural and functional studies on DUX4 in human myogenesis**

10:15–10:30 a.m.
Eidahl (presenter)/Harper: **Regulation of facioscapulohumeral muscular dystrophy candidate protein DUX4**

10:30–10:40 a.m.
DeSimone (presenter)/Emerson: **Identification of a DUX4-intercting protein and the hyaluronic acid pathway as novel therapeutic targets for FSHD**

10:40 10:50 a.m.
Mariot/Dumonceaux (presenter): **Myostatin expression in neuromuscular diseases: challenges and hopes**

10:50–11:00 a.m.
Saad (presenter)/Harper: **The natural microRNA miR-675 reduces DUX4 expression and toxicity in vitro**

11:00–11:15 a.m.
Discussion

SCHEDULE

Friday, June 8, 2018—El Dorado Ballroom
continued

PLATFORM SESSION 3—11:15–12:20 p.m.
Preclinical studies in FSHD, including cellular (myoblasts/iPS) and animal models
Moderators: Peter Jones and Michael Kyba

11:15–11:30 a.m.
Chen/Hayward (presenter): **Single-cell transcriptome heterogeneity in myogenic cells from individualswith FSHD**

11:30–11:45 a.m.
van den Heuvel (presenter)/van der Maarel: **Single-cell RNA-sequencing in facioscapulohumeral muscular dystrophy disease etiology and development**

11:45 a.m.–12:00 p.m.
Giesige (presenter)/Harper: **AAV.RNAi and follistatin gene therapy development in the TIC-DUX4 Mouse Model of FSHD**

12:00–12:10 p.m.
Daman (presenter)/Emerson: **An FSHD cell xenograft assay for drug development**

12:10–12:20 p.m.
Chen (presenter)/Yokota: **Systemic delivery of LNA gapmers targeting DUX4 improved muscle function in FLExDUX4 mice**

12:20–12:30 p.m.
Discussion

LUNCH AND POSTER VIEWING
12:30–2:00 p.m.
Lunch in Carson City Room;
posters in El Dorado Ballroom Foyer

PLATFORM SESSION 4—2:00–3:00 p.m.
Clinical studies and clinical trial
Moderators: Jeffrey Statland and Baziel van Engelen

2:00–2:15 p.m.
Horlings (presenter)/van Engelen: **Clinical outcome measures, muscle imaging and (epi)genetic testing in a large cohort of FSHD patients**

2:15–2:30 p.m.
Sacconi (presenter)/van der Maarel: **FSHD1 and FSHD2 form a disease continuum**

2:30–2:40 p.m.
Hamel (presenter)/Statland: **MRI correlates to electrical impedance myography in facioscapulohumeral muscular dystrophy**

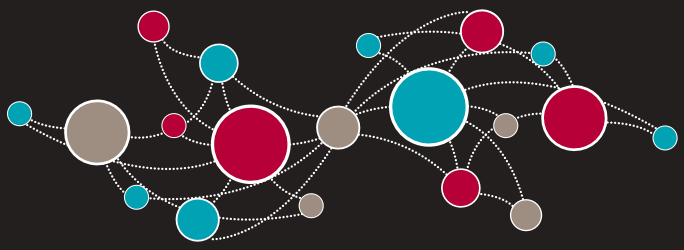
2:40–2:50 p.m.
Zhang (presenter)/Zhang: **Accurate molecular diagnosis of facioscapulohumeral muscular dystrophy in a cohort of 37 Chinese patients**

2:50–3:00 p.m.
Zheng (presenter)/Kong: **A case of first trimester prenatal diagnosis for FSHD1 using Karyomapping and single-molecule optical mapping**

3:00–3:15 p.m.
Discussion

PLATFORM SESSION 5—3:15–4:20 p.m.
Industry aspects and therapy development (screens)
Moderators: Peter Jones and George Padberg

3:15–3:25 p.m.
Statland (presenter)/Attie: **Preliminary results from a dose-escalation phase 2 study to evaluate ACE -083, a local muscle therapeutic, in patients with facioscapulohumeral muscular dystrophy**



3:25–3:40 p.m.
Rojas (presenter)/Cacace: **Pharmacological inhibition of DUX4 expression rescues FSHD pathophysiology in FSHD skeletal muscle myotubes**

3:40–3:50 p.m.
Hupper/Clarke (presenter): **A low molecular weight compound screen in FSHD patient myotubes identifies modulators of Dux4 activity and novel mechanisms of action**

3:50–4:00 p.m.
Cruz/Clarke (presenter): **Protein kinase A activation inhibits DUX4 gene expression in myotubes from patients with FSHD**

4:00–4:10 p.m.
Lu-Nguyen (presenter)/Popplewell: **In vivo assessment of antisense therapy for Facioscapulohumeral muscular dystrophy**

4:10–4:20 p.m.
Rickard/Schmidt (presenter): GBC0905: **A novel targeted therapeutic agent to treat facioscapulohumeral muscular dystrophy**

4:20–4:30 p.m.
Discussion

ASSEMBLY SESSION
4:20–4:30 p.m.
Discussion and review of Saturday's (day 2) agenda
Moderators: 2018 IRC Meeting Organizing Committee

ADJOURN
5:00 p.m.

Saturday, June 9, 2018—El Dorado Ballroom

REGISTRATION & BREAKFAST
7:30–8:30 a.m.
El Dorado Ballroom Foyer & Carson City Ballroom

PLANNING AND PROBLEM-SOLVING SESSION
Moderated discussion sessions with entire group of attendees based on data presented at day 1. Co-chairs and organizers will meet end of day Friday and/or Saturday morning before the session to help identify specific topics of interest to lead the discussion. The goals are to 1) help identify and troubleshoot bottlenecks; and 2) define the research/clinical priorities for the next year 2018–2019.

WELCOME
8:30–8:35 a.m.
2018 IRC Meeting Organizing Committee

PLANNING AND PROBLEM-SOLVING SESSION(S)
8:35–11:15 a.m.
International "lab meeting." Discussion to identify and troubleshoot bottlenecks, and define the research/clinical priorities going forward
Moderators: Michael Altherr, 2018 IRC Meeting Organizing Committee, and others TBD

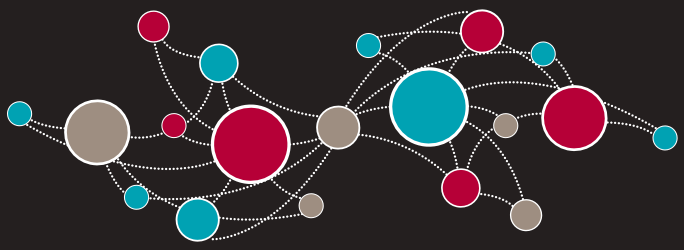
11:15–11:45 a.m.
Finalizing listing of items, areas, and priorities

LUNCH
11:45 a.m.–12:45 p.m.
Lunch located in Carson City Ballroom; posters should be taken down.

ADJOURN
12:45 p.m.

POSTER SESSIONS

POSTER NUMBER	AUTHORS AND TITLES
30	**Calandra/Deidda (presenter)** Large-scale methylation analysis in facioscapulohumeral muscular dystrophy (FSHD)
31	**Cammish/Orrell (presenter)** The UK FSHD Patient Registry: a key tool in the facilitation of clinical research
32	**Chang** Testing the potential for comorbidity of FSHD with arhinia using inducibility of DUX4 expression in dermal fibroblasts
33	**Choi** Establishment of FSHD-PAX7 genetic reporter lines to study function of muscle stem cells in FSHD
34	**Choi/Lim (presenter)** Modular platform for the myogenesis of human embryonic stem cells by using multiple genetic reporter lines
35	**Ciskewski/Popplewell (presenter)** Novel epigenetic mechanisms regulating DUX4 expression
36	**Claus** Direct interaction of DUX4/4c with the multifunctional protein C1QBP
37	**Coulis** Overexpression of DUX-4 induces muscle Tregs: a potential role for the immune system in FSHD
38	**Denny** High-density lipoproteins protect against DUX4-mediated damage in a lentiviral model of FSHD
39	**Dion/Robin (presenter)** Implication of SMCHD1 in D4Z4 epigenetic dynamics: lesson from IPSCs
40	**Han** Longitudinal study of Kinect-based upper extremity reachable workspace in FSHD
41	**Hiramuki** A mapping study of SMCHD1 identifies the region of nuclear localization, dimerization, and protein cleavage
42	**Homma** DUX4 alters mRNA splicing of TDP-43 target
43	**Jones, T** The FLExDUX4 transgenic mouse can be used to develop FSHD-like mouse models with pathophysiology ranging in severity
44	**Kazakov** Some problems connected with AD FSHD classification
45	**Lopez** Autologous stem cell treatment in FSHD. preliminary report
46	**Lunt** No evidence for altered incidence of cancer in FSHD



POSTER NUMBER	AUTHORS AND TITLES
47	**Maruyama** Development of LNA and 2'-MOE gapmers to treat facioscapulohumeral muscular dystrophy
48	**Mueller** Xenografting human muscle stem cells into mice to study FSHD
49	**Pakula** The role of estrogen regulation in FSHD-1
50	**Rashnonejad** AAV.U7-snRNA-mediated exon skipping of the toxic DUX4 gene as a promising therapeutic approach for facioscapulohumeral muscular dystrophy
51	**Robertson** Measurement of evidence of DUX4 as a proof of concept biomarker for FSHD clinical trials
52	**Sanson/Sacconi (presenter)** Self-report questionnaire vs. clinical evaluation form in the French National FSHD Registry: a statistical comparison
53	**Teveroni/Moretti (presenter)** Set-up of an in vivo model of facioscapulohumeral muscular dystrophy (FSHD) based on human perivascular cells
54	**van der Stoep** Evaluation of FSHD1 testing in diagnostics using FiberVision molecular combing technology

FSH SOCIETY 2018 INTERNATIONAL RESEARCH CONGRESS & RESEARCH PLANNING MEETINGS

Co-chairs:

Marnie Blewitt, PhD, *Walter + Eliza Hall Institute of Medical Research*
Peter L. Jones, PhD, *University of Nevada, Reno*
Michael Kyba, PhD, *Lillehei Heart Institute, University of Minnesota*
Jeffrey Statland, MD, *University of Kansas*
Stephen J. Tapscott, MD, PhD, *Fred Hutchinson Cancer Research Center*
Silvère van der Maarel, PhD, *Leiden University Medical Center*
Baziel van Engelen, MD, PhD, *Radboud University Nijmegen Medical Centre*
Peter Zammit, PhD, *King's College London*

Organizers:

Daniel Paul Perez & FSH Society Scientific Advisory Board

The FSH Society would like to thank our Gold Sponsors:

ACCELERON

Fulcrum Therapeutics

AFMTÉLÉTHON
CURE THROUGH INNOVATION

UMMS Wellstone Center for FSHD

University of Massachusetts Medical School
UMASS

MDA

NIH
Eunice Kennedy Shriver National Institute of Child Health and Human Development

The FSH Society would like to thank our Silver Sponsors:

Genea BIOCELLS
STRENGTH IN DISCOVERY

University of Nevada, Reno School of Medicine

ultragenyx pharmaceutical

ED & BETTY SCHECHTER MEMORIAL RESEARCH FUND

FSHD CANADA FOUNDATION
Curing the #1 Form of Muscular Dystrophy

GENOMIC VISION

The FSH Society would like to thank our Bronze Sponsors:

SANOFI GENZYME

KIICHI ARAHATA MEMORIAL FUND

FSH SOCIETY
FACIOSCAPULOHUMERAL MUSCULAR DYSTROPHY

The FSH Society is an independent, non-profit 501(c)(3) and tax-exempt U.S. corporation organized to address issues and needs specifically related to facioscapulohumeral muscular dystrophy (FSHD). Contributions and financial donations are acknowledged for tax purposes. All inquiries should be addressed to: FSH Society, Daniel Paul Perez, 450 Bedford Street, Lexington, MA 02420. Phones: (781) 301-6650 and (781) 275-7781, fax: (781) 862-1116, email: daniel.perez@fshsociety.org, website: http://www.fshsociety.org