ADMINISTRATIVE CORE

PI, Coordinator:	E. Riley, SDSU
Scientific Director:	M. Charness, Harvard
Admin. Specialist:	J. Thomas, SDSU
Admin. Coordinator:	J. Vander Velde, SDSU

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STEERING COMMITTEE

Chaired by Charness and Riley

T. Blanchard*/ S Mooney*	K. L. Jones
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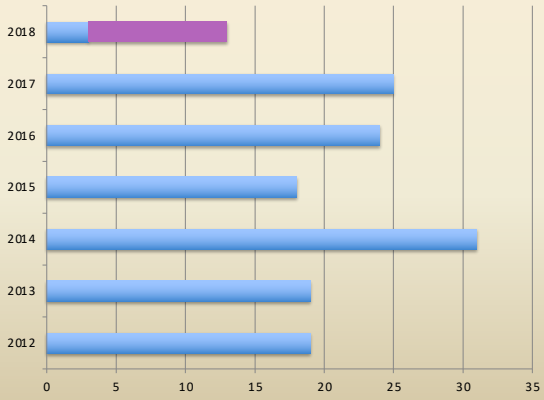
T. Foroud	C. Petrenko*/ C. Tapparello*
K. Hashimoto-Torii*/ M. Torii*	J. Weinberg
P. Hammond	J. Wozniak

* Denotes multiple PI project

Affiliate Scientists: Donald, Miranda, Sakar, Sowell

Productivity of CIFASD

Publications citing CIFASD funding in PubMed



Total publications supported by CIFASD 2012 – Present = **149**

CIFASD investigators had significant contributions in high impact journals

- ***Nature***
- ***Trends in Cognitive Sciences***
- ***Journal of Neuroscience***
- ***Development***
- ***Journal of Pediatrics***
- ***Proc Natl Acad Sci***

Publications since the start of CIFASD4

- Fish, E. W., Murdaugh, L. B., Sulik, K. K., Williams, K. P., & Parnell, S. E. (2017). Genetic vulnerabilities to prenatal alcohol exposure: Limb defects in sonic hedgehog and GLI2 heterozygous mice. *Birth Defects Research, 109*(11), 860-865. doi:10.1002/bdr2.1026
- Fish, E. W., Wieczorek, L. A., Rumple, A., Suttie, M., Moy, S. S., Hammond, P., & Parnell, S. E. (2018). The enduring impact of neurulation stage alcohol exposure: A combined behavioral and structural neuroimaging study in adult male and female C57BL/6J mice. *Behavioural Brain Research, 338*, 173-184. doi:10.1016/j.bbr.2017.10.020
- Herting, M. M., Kim, R., Uban, K. A., Kan, E., Binley, A., & Sowell, E. R. (2017). Longitudinal changes in pubertal maturation and white matter microstructure. *Psychoneuroendocrinology, 81*, 70-79. doi:10.1016/j.psyneuen.2017.03.017
- Infante, M. A., Moore, E. M., Bischoff-Grethe, A., Tapert, S. F., Mattson, S. N., & Riley, E. P. (2017). Altered functional connectivity during spatial working memory in children with heavy prenatal alcohol exposure. *Alcohol, 64*, 11-21. doi:10.1016/j.alcohol.2017.05.002
- Kable, J. A., Coles, C. D., & CIFASD. (2017). Prefrontal cortical responses in children with prenatal alcohol-related neurodevelopmental impairment: A functional near-infrared spectroscopy study. *Clinical Neurophysiology, 128*(11), 2099-2109. doi:10.1016/j.clinph.2017.08.009
- Nation, K., Birge, A., Lunde, E., Cudd, T., Goodlett, C., & Washburn, S. (2017). Video-based data acquisition system for use in eye blink classical conditioning procedures in sheep. *Behavior Research Methods, 49*(5), 1838-1851. doi:10.3758/s13428-016-0826-

Publications since the start of CIFASD4

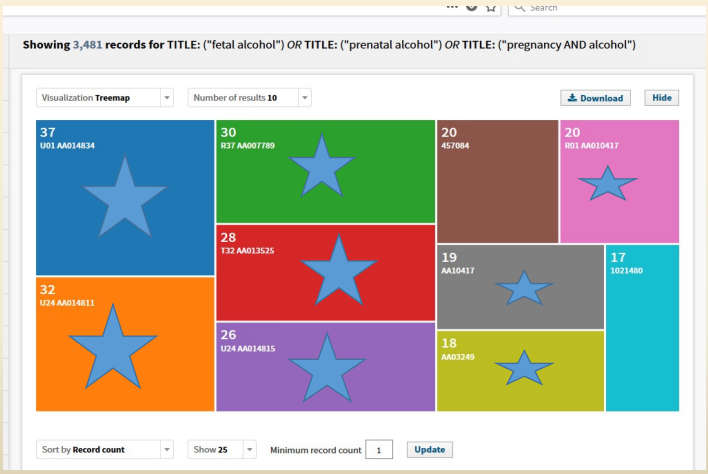
- Suttie, M., Wetherill, L., Jacobson, S. W., Jacobson, J. L., Hoyme, H. E., Sowell, E. R., . . . CIFASD. (2017). Facial Curvature Detects and Explicates Ethnic Differences in Effects of Prenatal Alcohol Exposure. *Alcoholism-Clinical and Experimental Research, 41*(8), 1471-1483. doi:10.1111/acer.13429
- Taggart, T. C., Simmons, R. W., Thomas, J. D., & Riley, E. P. (2017). Children with Heavy Prenatal Alcohol Exposure Exhibit Atypical Gait Characteristics. *Alcoholism-Clinical and Experimental Research, 41*(9), 1648-1655. doi:10.1111/acer.13450
- Uban, K. A., Herting, M. M., Wozniak, J. R., Sowell, E. R., & CIFASD. (2017). Sex differences in associations between white matter microstructure and gonadal hormones in children and adolescents with prenatal alcohol exposure. *Psychoneuroendocrinology, 83*, 111-121. doi:10.1016/j.psyneuen.2017.05.019
- Wetherill, L., Foroud, T., & Goodlett, C. (2018). Meta-Analyses of Externalizing Disorders: Genetics or Prenatal Alcohol Exposure? *Alcoholism-Clinical and Experimental Research, 42*(1), 162-172. doi:10.1111/acer.13535
- Woods, K. J., Jacobson, S. W., Molteno, C. D., Jacobson, J. L., & Meintjes, E. M. (2018). Altered Parietal Activation during Non-symbolic Number Comparison in Children with Prenatal Alcohol Exposure. *Frontiers in Human Neuroscience, 11*. doi:10.3389/fnhum.2017.00627
- Wozniak, J. R., Mueller, B. A., Mattson, S. N., Coles, C. D., Kable, J. A., Jones, K. L., . . . CIFASD. (2017). Functional connectivity abnormalities and associated cognitive deficits in fetal alcohol Spectrum disorders (FASD). *Brain Imaging and Behavior, 11*(5), 1432-1445. doi:10.1007/s11682-016-9624-4

New Publications n=9 Since Last Report in FEB2018

- Huang R, Xie W and Alison Noble J. VP-Nets: Efficient automatic localization of key brain structures in 3D fetal neurosonography. *Med Image Anal. 2018 Jul;47:127-139. PMCID:PMC5988265*
- Gross LA, Moore EM, Wozniak JR, Coles CD, Kable JA, Sowell ER, Jones KL, Riley EP, Mattson SN and **CIFASD**. Neural correlates of verbal memory in youth with heavy prenatal alcohol exposure. *Brain Imaging and Behavior*, 2018 Jun;12(3):806-822. PMCID:PMC5745322
- Bodnar TS, Raineki C, Wertelecki W, Yevtushok L, Plotka L, Zymak-Zakutnya N, Honerkamp-Smith G, Wells A, Rolland M, Woodward TS, Coles CD, Kable JA, Chambers CD, Weinberg J and **CIFASD**. Altered maternal immune networks are associated with adverse child neurodevelopment: Impact of alcohol consumption during pregnancy. *Brain Behav Immun. 2018 May 5.*
- Sowell KD, Uriu-Adams JY, Van de Water J, Chambers CD, Coles CD, Kable JA, Yevtushok L, Zymak-Zakutnya N, Wertelecki W, Keen CL and **CIFASD**. Implications of altered maternal cytokine concentrations on infant outcomes in children with prenatal alcohol exposure. *Alcohol*, 2018 May;68:49-58. PMCID:PMC5820219
- Petrelli B, Weinberg J and Hicks GG. Effects of prenatal alcohol exposure (PAE): Insights into FASD using mouse models of PAE. *Biochem Cell Biol.,* 2018 Apr;96(2):131-147. PMCID:PMC5991836
- Hendrickson TJ, Mueller BA, Sowell ER, Mattson SN, Coles CD, Kable JA, Jones KL, Boys CJ, Lee S, Lim KO, Riley EP and Wozniak JR. Two-year cortical trajectories are abnormal in children and adolescents with prenatal alcohol exposure. *Developmental Cognitive Neuroscience*, 2018 Apr;30:123-133. PMCID:PMC5949095
- Chan PH, Xu R and Chambers CD. A Study of R(2) measure under the accelerated failure time models. *Commun Stat Simul Comput. 2018;47(2):380-391. PMCID:PMC5881951*
- Huang R, Namburete A and Noble A. Learning to segment key clinical anatomical structures in fetal neurosonography informed by a region-based descriptor. *J Med Imaging (Bellingham), 2018 Jan;5(1):014007. PMCID:PMC5845099*

- Biffen SC, Warton CMR, Lindinger NM, Randall SR, Lewis CE, Molteno CD, Jacobson JL, Jacobson SW and Meintjes EM. Reductions in corpus callosum volume partially mediate effects of prenatal alcohol exposure on IQ. *Front Neuroanat., 2018 Jan 12;11:132. PMCID:PMC5771245*

Web of Science Search



April 2018 The 8th International Research Conference on Adolescents and Adults with FASD in Vancouver, BC, Canada

- Riley and Charness serve on the Expert Planning Committee

RSA San Diego, CA
June 16-20, 2018

SUNDAY, JUNE 17

10:00am - 11:30am | SYMPOSIUM | HARBOR H

***PREDICTING OUTCOMES OF FETAL ALCOHOL EXPOSURE IN THE CIFASD COHORT
ORGANIZER/CHAIR: MICHAEL CHARNESS, VA BOSTON HEALTHCARE SYSTEM/HARVARD MEDICAL SCHOOL/BOSTON UNIV. SCHOOL OF MEDICINE, WEST ROXBURY, MA, USA
CHAIR: EDWARD RILEY, SAN DIEGO STATE UNIVERSITY, SAN DIEGO, CA, USA

10:00 AM INTRODUCTION
Michael Charness, *VA Boston Healthcare System/Harvard Medical School/Boston University School of Medicine, West Roxbury, MA, USA*

10:05 AM PRENATAL ETHANOL EXPOSURE INDUCES A "TRANSIENT CILIOPATHY": A NOVEL MECHANISM FOR ETHANOL'S PATHOGENESIS
Scott Parnell, *University of North Carolina, Chapel Hill, NC, USA*

10:23 AM USING 3D FACIAL ANALYSIS TO IDENTIFY MINOR FACIAL ANOMALIES AND ETHNIC DIFFERENCES IN EFFECTS OF PRENATAL ALCOHOL EXPOSURE
Michael Suttie, *University of Oxford, Oxford, United Kingdom*

10:41 AM ALCOHOL INTAKE AND IMMUNE FUNCTION: ASSOCIATIONS BETWEEN MATERNAL IMMUNE NETWORKS AND CHILD NEURODEVELOPMENTAL OUTCOME
Joanne Weinberg, *University of British Columbia, Vancouver, BC, Canada*

10:59 AM A GROWTH MODELING APPROACH TO PREDICTING FUTURE NEURODEVELOPMENTAL PERFORMANCE IN INFANTS WITH PRENATAL ALCOHOL EXPOSURE
Christina Chambers, *University of California San Diego, La Jolla, CA, USA*

11:17 AM DISCUSSANT/QUESTION MODERATOR
Edward Riley, *San Diego State University, San Diego, CA USA*

MONDAY, JUNE 18

9:15am - 10:45am | SYMPOSIUM | HARBOR G

***IDENTIFYING PRENATAL ALCOHOL-AFFECTED INDIVIDUALS EARLY IN LIFE:
THE USE OF NOVEL SCREENING TOOLS AND METHODOLOGIES IN HUMAN POPULATIONS
ORGANIZERS/CHAIRS: CHRISTINA CHAMBERS, UNIVERSITY OF CALIFORNIA SAN DIEGO, LA JOLLA, CA, USA
AND BILL DUNTY, NIAAA/NIH DIVISION OF METABOLISM AND HEALTH EFFECTS, BETHESDA, MD, USA

9:15 AM INTRODUCTION
Bill Dunty, *NIAAA/NIH Division of Metabolism and Health Effects, Bethesda, MD, USA*

9:20 AM HEMODYNAMIC CHANGES IN THE PREFRONTAL CORTEX AS MEASURED BY FUNCTIONAL NEAR-INFRARED SPECTROSCOPY AND THEIR RELATIONSHIPS TO NEUROBEHAVIORAL OUTCOMES IN CHILDREN WITH FASD
Julie Kable, *Emory University School of Medicine, Atlanta, GA, USA*

9:38 AM EARLY IDENTIFICATION OF EFFECTS OF PRENATAL ALCOHOL EXPOSURE: INFANT CARDIAC ORIENTING RESPONSE AS A BIOMARKER
Claire Coles, *Emory University School of Medicine, Atlanta, GA, USA*

9:56 AM miRNAS AS BIOMARKERS OF PRENATAL ALCOHOL EXPOSURE AND INFANT OUTCOME
Amanda Mahnke, *Texas A&M University Health Science Center, Bryan, TX, USA*

10:14 AM DEVELOPMENT OF AN EPIGENETIC BIOMARKER FOR PREDICTION OF FETAL ALCOHOL SPECTRUM DISORDERS
Aileen Baldwin, *United States Drug Testing Laboratories, Inc., Des Plaines, IL, USA*

10:32 AM DISCUSSANT/QUESTION MODERATOR
Christina Chambers, *University of California San Diego, La Jolla, CA, USA*

1:20pm - 2:50pm | SYMPOSIUM | HARBOR B

NON-CODING RNA IN ALCOHOLISM: MECHANISMS, BIOMARKERS AND THERAPEUTIC TARGETS
ORGANIZERS/CHAIRS: SUBHASH PANDEY, CTR FOR ALCOHOL RESEARCH IN EPIGENETICS,
UNIV OF ILLINOIS & JBVA MEDICAL CENTER, CHICAGO, IL, USA
AND ANTONIO NORONHA, NIH/NIAAA/DNB, BETHESDA, MD, USA

1:43 PM ENDOCRINE MIRNAS IN PREGNANT WOMEN, PREDICTIVE OF FASD INFANT OUTCOMES, CONTROL PLACENTAL TROPHOBLAST GROWTH, SURVIVAL, AND MATURATION
Alexander Tseng, *Texas A&M Health Science Center, College Station, TX, USA*

2:37 PM DISCUSSANT/QUESTION MODERATOR
Rajesh Miranda, *Texas A&M Health Science Center/College of Medicine, Bryan, TX USA*

FETAL ALCOHOL SPECTRUM DISORDERS Study Group

FETAL ALCOHOL SPECTRUM DISORDERS STUDY GROUP
June 16, 2018
Manchester Grand Hyatt, San Diego, CA

Sex Differences and Vulnerability

10:25-10:40 **Timothy A. Cudd Award: Nihal Salem, M.S.**, Texas A&M University. *Fetal sex is a determinant of maternal plasma microRNA responses to prenatal alcohol exposure: Evidence from an analysis of a Ukraine Cohort*

Under consideration for the Gordis Student Award: Sunday, June 17 3:10 PM – 4:40 PM

Harbor D Gordis Paper Session – Students Moderator: Rebecca Gilbertson

098 ~ S ~ 098 GORDIS AWARD FINALIST: ENDOCRINE MIRNAS IN PREGNANT WOMEN, PREDICTIVE OF FASD INFANT OUTCOMES, CONTROL PLACENTAL TROPHOBLAST GROWTH, SURVIVAL, AND MATURATION A.M. Tseng, S Balaraman, C Chambers, A.M. Allan, R.C. Miranda Texas A&M University Health Science Center, Department of Neuroscience and Experimental Therapeutics, Bryan TX, 77807, USA

ENDOCRINE MIRNAS IN PREGNANT WOMEN, PREDICTIVE OF FASD INFANT OUTCOMES, CONTROL PLACENTAL TROPHOBLAST GROWTH, SURVIVAL, AND MATURATION
A.M. Tseng, S. Balaraman, C. Chambers, A.M. Allan, R.C. Miranda
Texas A&M University Health Science center, Department of Neuroscience and Experimental Therapeutics, Bryan TX 77807, USA

Poster Session: Sunday, June 17, 2018

TRANSCRIPTOME-WIDE ANALYSIS IN THE NEURAL TUBE FOLLOWING MID-NEURULATION STAGE ETHANOL EXPOSURE IN C57BL/6J MICE
K.E. Boschen, S.E. Parnell
University of North Carolina, Bowles Center for Alcohol Studies, Chapel Hill, NC, 27599, USA

TRANSCRIPTOME-WIDE ANALYSIS OF ETHANOL SENSITIVE AND INSENSITIVE MOUSE STRAINS DURING EARLY EMBRYONIC DEVELOPMENT
K.E. Boschen, J.K. Eberhart, S.E. Parnell
University of North Carolina, Bowles Center for Alcohol Studies, Chapel Hill, NC, 27599, USA

CYTOKINE DISTURBANCES ASSOCIATED WITH PRENATAL ALCOHOL EXPOSURE IN CHILDREN: IMPLICATIONS FOR HEALTH AND DEVELOPMENT
T.S. Bodnar, C. Raineki, W. Wertelecki, L. Yevtushok, L. Plotka, N. Zymak-Zakutnya, A. Wells, G. Honerkamp-Smith, C.D. Coles, J.A. Kable, C.D. Chambers, J. Weinberg, the CIFASD
University of British Columbia, Department of Cellular & Physiological Sciences, Vancouver, BC, V6T 1Z3, Canada

EFFECT OF PRENATAL ALCOHOL EXPOSURE AND PARENTAL ALCOHOL DEPENDENCE ON RISK OF EXTERNALIZING DISORDERS IN COGA AND CIFASD SAMPLES
L. Wetherill, S.N. Mattson, T. Foroud, C. Goodlett, CIFASD, COGA
Department of Psychology, School of Science, Indiana University Purdue University at Indianapolis, Indianapolis, IN 46202, USA

Poster Session: Monday, June 18, 2018

VALIDATION OF A DECISION TREE FOR CLINICAL IDENTIFICATION OF CHILDREN AFFECTED BY PRENATAL ALCOHOL EXPOSURE IN A LOW-RISK SAMPLE

L.R. Doyle, C.D. Chambers, K.L. Jones, S.N. Mattson, the CIFASD
Center for Behavioral Teratology, San Diego State University, San Diego, CA 92120, USA

ISBRA Congress September 9-13, 2018 in Kyoto, Japan - CIFASD Symposium

CIFASD and the Genetics of FASD

Organizer: Michael Charness

Presenters:
Michael Charness
Johann Eberhart
Tatiana Foroud
Scott Parnell

8th International Conference on Fetal Alcohol Spectrum Disorder in Vancouver, BC, Canada

- CIFASD invited to submit a Plenary Session

8th International Conference on Fetal Alcohol Spectrum Disorder

Research, Results and Relevance

Integrating Research, Policy and Promising Practice Around the World

March 6-9, 2019

Thank you

Jill VanderVelde
Sarah Mattson
Jennifer Thomas
Bill Dunty
Dale Hereld
Publications and Data Sharing Committees
Science Advisory Board

PROGRESS

Ukraine Cohort Study

CIFASD

June 15, 2018

ABSTRACTS 2018

- Bodnar, T.S., Raineki, C., Wertelecki, W., Yevtushok, L., Plotka, L., Zymak-Zakutnya, N., Wells, A., Honerkamp-Smith, G., Coles, C.D., Kable, J.A., Chambers, C.D., J. Weinberg, & the CIFASD. Cytokine disturbances associated with prenatal alcohol exposure in children: Implications for health and development. Research Society on Alcoholism, San Diego, CA, June 16-20, 2018
- L.R. Doyle, C.D. Chambers, K.L. Jones, S.N. Mattson, & the CIFASD Validation of a decision tree for clinical identification of children affected by prenatal alcohol exposure in a low-risk sample. Research Society on Alcoholism, San Diego, CA, June 16-20, 2018.
- Salem N, Chambers CD, Miranda RC. Fetal sex is a determinant of maternal plasma microRNA responses to prenatal alcohol exposure: Evidence from an analysis of a Ukraine Cohort. Fetal Alcohol Spectrum Disorders Study Group. Research Society on Alcoholism, San Diego, A, June 16-20, 2018.
- Tseng A. Endocrine MicroRNAs In Pregnant Women, Predictive Of FASD Infant Outcomes, Control Placental Trophoblast Growth, Survival, And Maturation. Research Society on Alcoholism, San Diego, CA, June 16-20, 2018.

PUBLICATIONS 2018

Brain, Behavior, and Immunity xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Brain, Behavior, and Immunity

journal homepage: www.elsevier.com/locate/ybrbi

Full-length Article

Altered maternal immune networks are associated with adverse child neurodevelopment: Impact of alcohol consumption during pregnancy

Tamara S. Bodnar[a,*], Charlis Raineki[a], Wladimir Wertelecki[b], Lyubov Yevtushok[c], Larisa Plotka[c], Natalya Zymak-Zakutnya[d], Gordon Honerkamp-Smith[b], Alan Wells[b], Matthieu Rolland[b], Todd S. Woodward[e,f], Claire D. Coles[g], Julie A. Kable[g], Christina D. Chambers[b,h], Joanne Weinberg[a], Collaborative Initiative on Fetal Alcohol Spectrum Disorders (CIFASD)

[a] Department of Cellular and Physiological Sciences, University of British Columbia, Vancouver, BC, Canada
[b] Department of Pediatrics, University of California San Diego, La Jolla, USA
[c] OMNI-Net for Children International Charitable Fund, Rivne Oblast Medical Diagnostic Center, Rivne, Ukraine
[d] OMNI-Net for Children International Charitable Fund, Khmelnytsky Perinatal Center, Khmelnytsky, Ukraine
[e] Department of Psychiatry, University of British Columbia, Vancouver, Canada
[f] Translational Research Unit, BC Mental Health and Addictions Research Institute, Provincial Health Services Authority, Vancouver, BC, Canada
[g] Department of Psychiatry and Behavioral Sciences, Department of Pediatrics, Emory University School of Medicine, Atlanta, USA
[h] Department of Family Medicine and Public Health, University of California San Diego, La Jolla, CA, USA

PUBLICATIONS 2018

Alcohol

Volume 68, May 2018, Pages 49-58

Implications of altered maternal cytokine concentrations on infant outcomes in children with prenatal alcohol exposure

K.D. Sowell [a], J.Y. Uriu-Adams [a], J. Van de Water [b], C.D. Chambers [c, d], C.D. Coles [e, f], J.A. Kable [e, f], L. Yevtushok [g], N. Zymak-Zakutnya [h], W. Wertelecki [c, d], C.L. Keen [a], Collaborative Initiative on Fetal Alcohol Spectrum Disorders (CIFASD)

Feature in September 2018 NIAAA-Spectrum

PRESENTATIONS 2018

- Chambers CD, Wells A, Xu R, Wertelecki W, Coles C, Kable J, Zymak-Zakutnya N, Yevtushok L. A growth modeling approach to predicting future neurodevelopmental performance in infants with prenatal alcohol exposure. Symposium entitled: Predicting outcomes of fetal alcohol exposure in the CIFASD cohort. Organizers/Chairs: Charness, M. and Riley, E. Research Society on Alcoholism, San Diego, CA, June 16-20,2018.
- Bodnar T, Raineki C., Wertelecki W., Yevtushok L., Zymak-Zakutnya N., Honerkamp-Smith G., Wells A., Woordward T., Coles CD, Kable J, Chambers C, Weinberg J, and the CIFASD. Alcohol intake and immune function: associations between maternal immune networks and child neurodevelopmental outcome. Symposium entitled: Predicting outcomes of fetal alcohol exposure in the CIFASD cohort. Organizers/Chairs: Charness, M. and Riley, E. Research Society on Alcoholism, San Diego, CA, June 16-20,2018.
- Coles CD, Kable JA, Mesa DA, Coleman TP, Jones KL, Yevtushok L, Kulikovsky Y, Wertelecki W, Chambers CD and the CIFASD. Early identification of effects of prenatal alcohol exposure: infant cardiac orienting response as a biomarker. Symposium entitled: Identifying prenatal alcohol-affected individuals early in life: the use of novel screening tools and methodologies in human populations . Organizers/Chairs Dunty, W and Chambers, CD. Research Society on Alcoholism, San Diego, CA., June 16-20, 2018.
- Weinberg J. Developmental origins of health and disease - DOHaD: Prenatal alcohol effects on brain and behavior. Department of Cellular and Physiological Sciences Research Retreat, January 20, 2018, Vancouver, BC.
- Raineki C, Bodnar TS, Wertelecki W, Yevtushok L, Plotka L, Zymak-Zakutnya N, Wells A, Honerkamp-Smith G, Coles CD, Kable JA, Chambers CD, Weinberg J, & the CIFASD. Alcohol consumption during pregnancy is associated with altered maternal and child immune function. Gordon Research Conference: Alcohol & the Nervous System, March 4-9, 2018, Galveston, TX
- Miranda RC, Tseng AM, Mahnke A, Wells A, Walter N, Newman N, Grant K, Kroenke C, Allan A, Chambers CD. microRNA biomarkers and mediators of prenatal alcohol effects. ISBRA 2018.
- Chambers CD. Latin America Consortium on FASD meeting for Chile, Brazil, Colombia, Mexico and US. Monterrey, Mexico, May 2018.
- APHA 2018.

SPECIAL ISSUE

- 5 manuscripts from CIFASD investigators invited for special issue of Birth Defects Research slated to publish 1st quarter 2019

TRAINEES

- Nihal Salem at Texas A&M honored with Tim Cudd award 2018
- Annika Montag, PhD, post-doctoral fellow at UCSD – previous Tim Cudd honoree – awarded first NIH grant for Native American research on FASD June, 2018
- Alexander Tseng, PhD, Gordis award finalist 2018 and awarded F31 from NIAAA
- Gretchen Bandoli, PhD, post-doctoral fellow at UCSD – appointed assistant professor in Dept of Pediatrics June, 2018
- Tammy Bodnar, post-doctoral fellow at UBC - moving to Research Associate 4th quarter 2018

AIMS - 2018

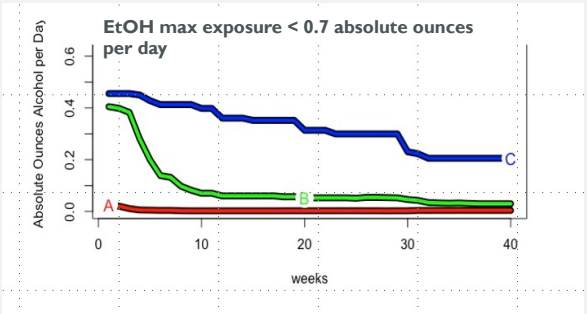
- Aims 2 and 3:
  - New maternal and child samples sent to Rajesh and Joanne
  - New FASD samples to be collected in July (pending NIAAA CofC) (for Kazue and Joanne)
  - Completed analysis of Sarah's decision tree applied to general population sample from CoFASP

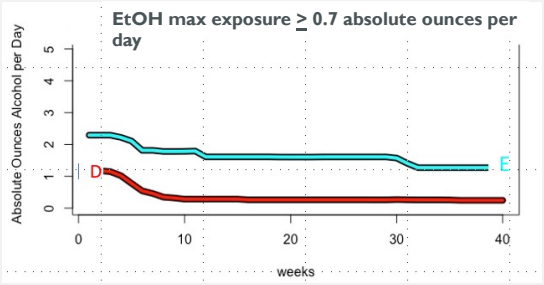
AIMS - 2018

- Aim 1 – clinical trajectories to characterize risk/resilience:
  - Growth trajectories; manuscript completed and ready for submission
  - Tested inclusion of biomarker assays in model but N too small to tell
  - Preparing to recast model with preschool testing as outcome – working with Sarah and Claire to discuss strategies for classifying exposure sample as FASD or not
  - Alcohol exposure trajectories (Bandoli) completed and manuscript in preparation

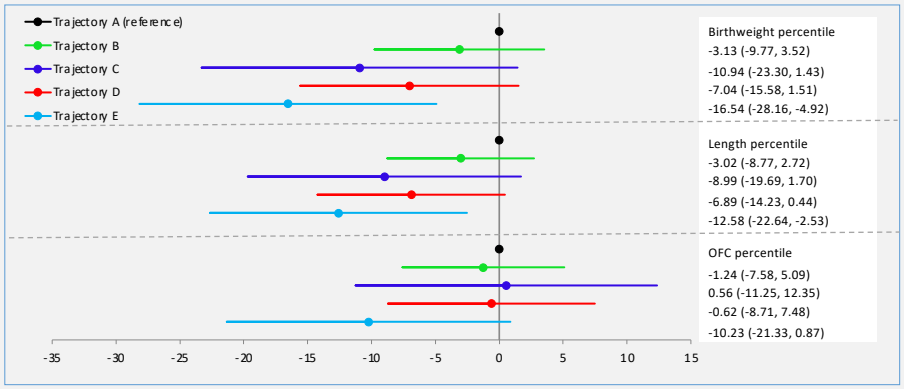
TRAJECTORIES OF ALCOHOL USE ACROSS GESTATION

A=277 – Low/No
B=96 – Moderate/Quit
C=23 – Moderate/Sustained
D=51 – High/Quit/Reduced
E=24 – High/Sustained





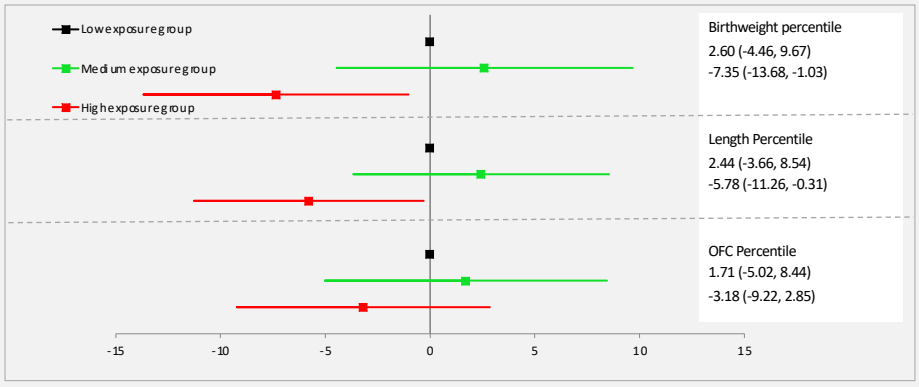
REGRESSION ANALYSIS OF ALCOHOL EXPOSURE TRAJECTORY AND BIRTH OUTCOMES



Multivariable linear regression models adjusted for vitamin use, SES, pregnancy smoking, maternal age, and gestational age at enrollment

Generally, only the highest use trajectory (E) confers risk of reduced birthweight or length

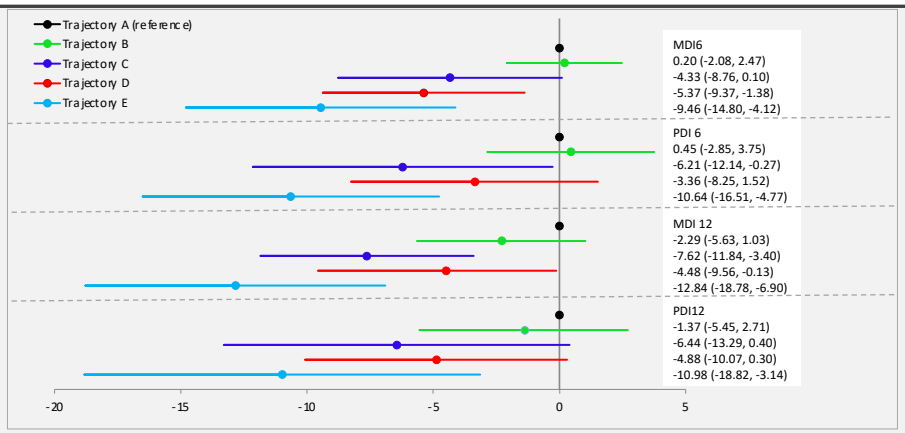
REGRESSION ANALYSIS OF AVERAGE ALCOHOL EXPOSURE GROUP AND BIRTH OUTCOMES



Multivariable linear regression models adjusted for vitamin use, SES, pregnancy smoking, maternal age, and gestational age at enrollment

In a "traditional" analysis with exposure grouped into terciles, the highest tercile confers risk for reduced birth weight and length, similar to the trajectory analyses

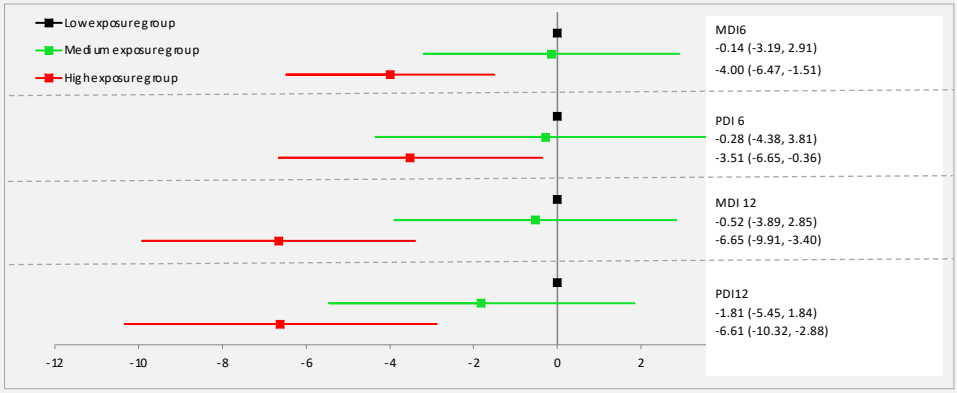
REGRESSION ANALYSIS OF TRAJECTORY MEMBERSHIP AND NEURODEVELOPMENTAL OUTCOMES



Multivariable linear regression: adjusted for vitamin use, SES, pregnancy smoking, maternal age, and gestational age at enrollment. Stabilized IPCW weights for censoring of BSID at 6 and 12 months

For neurodevelopmental outcomes, lower but sustained use past the first trimester (trajectory C) has a stronger association with deficits than higher but shorter exposure (trajectory D)

REGRESSION ANALYSIS OF TRAJECTORY MEMBERSHIP AND NEURODEVELOPMENTAL OUTCOMES



Multivariable linear regression: adjusted for vitamin use, SES, pregnancy smoking, maternal age, and gestational age at enrollment. Stabilized IPCW weights for censoring of BSID at 6 and 12 months

From the traditional tercile exposure analysis, only the highest use group is associated with neurodevelopmental deficits.

CLASSIFICATION OF FASD BY EXPOSURE GROUP AT PRESCHOOL AGE USING ONE OPTION FOR CRITERIA

FASD Classification	Alcohol Exposed N = 115	Alcohol Low or Unexposed N = 175
FAS – n (%)	5 (4.3)	0
pFAS – n (%)	7 (6.0)	3 (1.7)
ARND – n (%)	47 (40.9)	0
Total FASD – n (%)	59 (51.2)	3 (1.7)

Classified by Hoyme et al criteria, 2016, Pediatrics

Fetal Alcohol Spectrum Disorders in Adults: Health and Neurobehavior

CLAIRE D. COLES, PHD, THERESE GRANT, PHD, EDWARD P. RILEY, PHD,
IN COLLABORATION WITH JOANNE WEINBERG, PHD

Planning, Organization, Material Development

- Developed, Piloted and Implemented Health Survey/Demographic questionnaire, other forms
- Created Electronic Data Collection instruments and Databases
- Initiated Registry

Outreach

- Workshop, *Mapping the Undiscovered County: Physical and Mental Health in Adults with FASD* Presented at: 8th International Research Conference on Adolescents and Adults with FASD, Vancouver, BC, April 20, 2018

Characteristic	Sample Total (N=52)
Age	37.71 yrs, (Range 33-59 Yrs)
Gender	M=36.7%; F=63.3%
Race	W=44.9%; A-A=40.8%; Native=6.1%
Education	HS:20.4%; Col/Tech: 42.8 %; Grad:14.3%
Marital Status	With partner: 40.8%; Single: 59.2%
M # Children	2.33 (1.33 SD) (Range: 1-6)
Employment	FT: 54.2%; PT: 27.1%; Not wk: 18.7%
Income	More than $4000/mo: 29.2%

U01: Human Genetics




U01: Human Genetics - Progress

- DIGS FASD website now at IRB for final edits prior to launch
  - Soft launch after RSA
  - Reach out to other groups to send out information
  - Social media campaign

Web Portal: https://digfasd.org/.

Assent video: https://www.youtube.com/watch?v=4VoP44eMAaM&feature=youtu.be.

U01: Human Genetics - Progress

- Genetic analysis
  - Whole exome sequencing – completed targeted genes and also global analysis
  - Working with Peter H, Mike, and Peter C to develop a single facial or profile variable that can be used in sequence analysis (allows deferred subjects to be used)

U01: Human Genetics - Timeline

	Year 1	Year 2	Year 3	Year 4	Year 5
DIGS FASD protocol	X				
Recruit DIGS FASD participants		X	X	X	X
Implement FONS with Mattson		X			
Sequencing and Analysis		X	X	X	X
Recruit for Petrenko			X	X	X

Central Repository

- Informed consent
  - Templates for broad sharing language
  - Annual review of ICs for all projects
- Develop requested Central Repository usage for CIFASD4
- Share data with external researchers
  - Ensure CIFASD3 data is compliant for data sharing
  - Genomic data sharing (GDS) to confirm

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NHS
Brighton and Sussex University Hospitals
NHS Trust

Dr Neil Aiton - Neonatal Facial Analysis

- Continuing to support Brighton in facial image analysis of neonates
- All local ethnics approvals recently (last week) accepted
- Recruitment has begun!

Surrey and Borders Partnership NHS
NHS Foundation Trust

- **Dr Raja Mukherjee**

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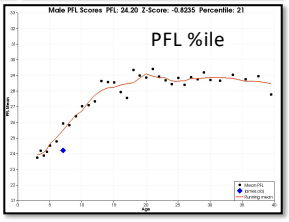
Clinical Translation: FaceScreen Concept Proposal



Update:

- Software very close to beta testing phase
- Integration with Canfield software – 'automated landmarking'
- ~50 images of PAE suspected children collected from Dr Mukherjee's clinic
- ~25-30 images agreed with Raja to collect over 6 month period
- 4-digit as a comparison possible

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Clinical Report

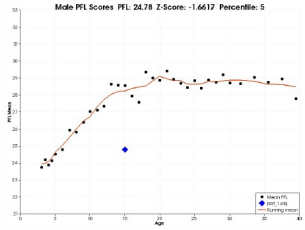
Report for 3D file: pat_1.obj
Report Date: 21/11/2017

Scan Date	21/11/2017
Date of birth	21/11/2002
Age	15.0
Gender	male
PFL	24.78
PFL Percentile	4.81
PFL Z-Score	-1.66
Race	Caucasian

PFL:

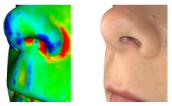
PFL Measure	24.78mm
Z-Score	-1.67
Percentile	4.81

Male PFL Scores PFL: 24.78 Z-Score: -1.6617 Percentile: 5

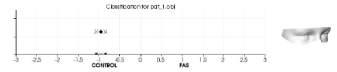


Philtrum Analysis

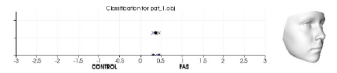
Philtrum Volume	19.43mm2
Philtrum Length	19.26mm
Philtrum Groove Index	1.01



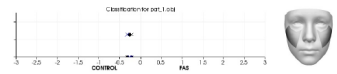
Classification Testing
Eyes : Value: -0.96, StdError: +/- 0.11



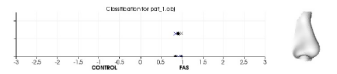
Face : Value: 0.37, StdError: +/- 0.07



Malar : Value: -0.27, StdError: +/- 0.05



Nose : Value: 0.90, StdError: +/- 0.07



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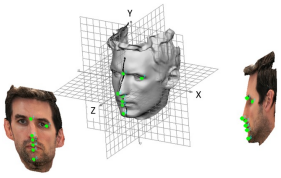
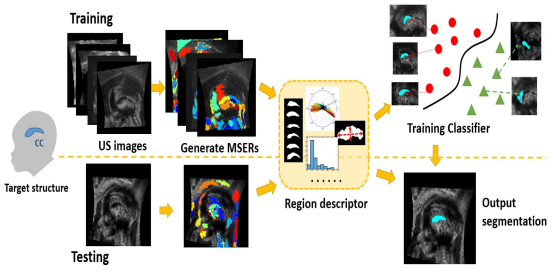


- **2D imaging protocol finalised**
- **Working with Chris Nellaker (Oxford)**



- **Ruobing Huang passed doctorate and started position**
- **Continuing to work on localizing neural structures in 3D US**

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Deliverables

Concept proposal submitted:
Introducing Objective 3D Facial Analysis into the Fetal Alcohol Spectrum Disorder Clinic Workflow

EUFASD 2018, Berlin, abstract accepted

Resubmission to ACER:
Combined Face-Brain Morphology and Associated Neurocognitive Correlates In Fetal Alcohol Spectrum Disorders

A Multisite Neurobehavioral Assessment of FASD

Sarah N. Mattson, Ph.D.
Center for Behavioral Teratology

San Diego State University

Aim 1a Progress

- Obtained and analyzed CoFASP data from San Diego site
- Presenting results at RSA (poster on Monday)
- Current progress: applying revised tree back to C3 data
- Next step: finalize revised tree, obtain CoFASP data (May) and CIFASD Ukraine data (Chambers)

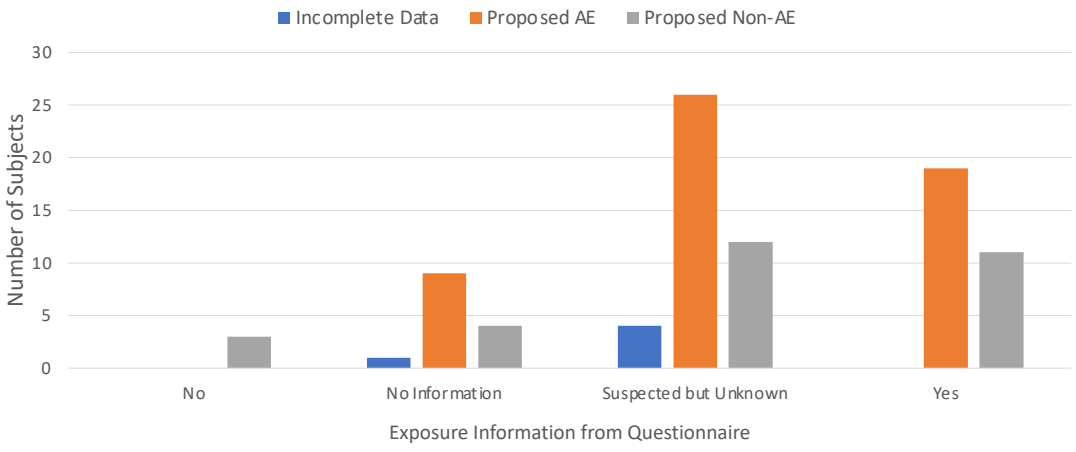
Group	Accuracy
FAS	100%*
pFAS	87.5%
ARND	87%
Controls	90.9%

Aim 1b Progress

- We have a working version of the app with upload and download capabilities (Thanks Ganz!)
- We have been using it with UCSD and SDSU patients
- We've enrolled 114 people so far
  - >90 have complete tree data

	Patients In Range	Agreed to Participate	E-Consented	eTree Completed	In Progress
Goal (San Diego)	40				
UCSD FASD Clinic	73	72	94	85	9
SDSU CBT	42	42			
Goal (MN)	45				

In-Progress Results



Aim 1c Progress

- Battery finalized, testers trained, testing in progress
- Database developed

	Y1 Goal	Project Goal	Agreed to Participate	E-Consented	eTree Completed	Testing Completed
SDSU/UCSD	15	120-165	114	94	85	28
UMN	30	90				34

Aim 2 Progress

- FONS under development

Collaborations

- Christie – helped to recruit focus group members, video actors
- Joanne – helping recruit controls
- Tina – CoFASP analyses
- Kazue – examining steroid use
- Jeff – neuropsychological assessment, eTree project, database development
- Ganz – eTree project
- Ken – eTree project
- Tatiana – WebPortal, FONS

Abstracts and Papers 2018

- Abstracts
  - Doyle, L.R., Chambers, C.D., Jones, S.N., Mattson, S.N., and the CIFASD. (2018). Validation of a decision tree for clinical identification of children affected by prenatal alcohol exposure in a low-risk sample. RSA 2018
  - Wetherill, L., Mattson, S.N., Foroud, T., Goodlett, C., and the CIFASD. (2018). Effect of prenatal alcohol exposure and parental alcohol dependence on risk of externalizing disorders in COGA and CIFASD samples. RSA 2018
  - Mattson, S.N. A Screening Tool for Identification of Children Affected by Prenatal Alcohol Exposure. To be presented at the American Public Health Association, November 2018
- Papers under review
  - Doyle, L.R., Glass, L., Wozniak, J.R., Kable, J.A., Riley, E.P., Coles, C.D., Sowell, E.R., Jones, K.L., Mattson, S.N. and the CIFASD. Impact of oppositional and conduct behaviors on executive function among youth with histories of heavy prenatal alcohol exposure.
  - Doyle, L.R., Moore, E.M., Coles, C.D., Kable, J.A., Sowell, E.R., Wozniak, J.R., Jones, K.L., Riley, E.P. Mattson, S.N. and the CIFASD. Executive functioning correlates with communication ability in youth with histories of heavy prenatal alcohol exposure.
  - Suttie, M., Wozniak, J.R., Parnell, S., Wetherill, L., Mattson, S.N., Sowell, E.R., Riley, E.P., Kan, E., Jones, K.L., Coles, C., Foroud, T., Hammond, P., and the CIFASD. Combined face-brain morphology and associated neurocognitive correlates in fetal alcohol spectrum disorders.

Exploring the Genetics of FASD in Complementary Mouse and Fish Models

Scott E. Parnell & Johann K. Eberhart

Research Progress

- Fish KO: nearly grown

Gene	6N vs 6J Fold Change	Adjusted p-value	Protein
Ccr1	-5.74151091	0.00310	C-C chemokine receptor type 1
Pthlh	-2.293740828	0.0062156	Parathyroid hormone-related protein
Fam65b	1.753490023	0.005015	Rho family-interacting cell polarization regulator 2
Wt1	-1.221098365	0.0481181	Wilms tumor protein homolog
Rhob	-0.619058615	0.0206481	Rho-related GTP-binding protein RhoB
Kit	-0.356554298	0.0481181	Kit Proto-oncogene receptor tyrosine kinase
Nnt	0.238291219	0.0010557	Nicotinamide Nucleotide Transhydrogenase
Dynlt1b	1.452439923	3.98E-25	Dynein light chain Tctex-type 1
Efcab7	2.168248448	1.45E-20	EF-hand calcium-binding domain-containing protein 7
Wdfy1	4.652347744	2.39E-250	WD repeat and FYVE domain-containing protein 1

Research Progress

- Fish KO: nearly grown
- Mns1 study completed
- Differential mouse strain response to ethanol currently being sequenced.
- Acquired p53 KO mice

RSA Abstracts

- K.E. Boschen, J.K. Eberhart, S.E. Parnell. TRANSCRIPTOME-WIDE ANALYSIS OF ETHANOL SENSITIVE AND INSENSITIVE MOUSE STRAINS DURING EARLY EMBRYONIC DEVELOPMENT
- K.E. Boschen, S.E. Parnell. TRANSCRIPTOME-WIDE ANALYSIS IN THE NEURAL TUBE FOLLOWING MID-NEURULATION STAGE ETHANOL EXPOSURE IN C57BL/6J MICE
- E.W. Fish, K.E. Boschen, S.E. Parnell. THE PRIMARY CILIA GENE KIF3A MEDIATES VULNERABILITY TO THE EFFECTS OF NEURULATION STAGE ALCOHOL EXPOSURE ON ADOLESCENT EXPLORATORY BEHAVIOR

Manuscripts

- Accepted:
  - Murdaugh LB, Mendoza-Romero HN, Fish EW, Parnell SE. A novel method for determining sex in late term gestational mice based on the external genitalia. PLoS One. Apr 4;13(4): 2018. PMID: 29617407
- Submitted/In the process of submitting:
  - Fish EW, Murdaugh LB, Zhang C, Boschen KE, Boa-Amponsem O, Mendoza-Romero HN, Tarpley M, Chdid L, Mukhopadhyay S, Cole GJ, Williams KP, Parnell SE. Cannabinoids Exacerbate Alcohol Teratogenesis by a CB1-Hedgehog Interaction. Nature Communications?
  - Boschen KE, Gong H, Murdaugh LB, Parnell SE. Knockdown of Mns1 increases susceptibility to craniofacial defects following gastrulation-stage alcohol exposure in mice. PLOS Genetics
- In prep:
  - Mendoza-Romero HN, Boschen KE, Eberhart JK, Parnell SE. The pro-apoptotic protein Bax modifies susceptibility to early gestational alcohol exposure.
- Planned:
  - GD 7 RNA-Seq

Aim 1. Use strain-specific differences in ethanol sensitivity to characterize modifiers of FASD

Aim 2. Employ screening approaches to identify and confirm modifiers of gene-ethanol interactions

Pathway Analyses

- Inflammatory processes
- PI3K/AKT/mTOR pathway
- Rho family GTPase signaling
- G-protein signaling
- PDGF/EGF/VEGF signaling
- cAMP-mediated signaling
- JAK/Stat signaling
- MAPK/ERK pathways

Genes up-regulated in 6J mice

- Kit: Tyrosine kinase that regulates cell survival and proliferation. Activates several pathways; AKT, RAS, RAF1, STAT, ERK1/2
- RhoB: Mediates apoptosis and affects cell adhesion by modulating the AKT signaling
- WT1: Transcription factor important in cell development and survival – mutated in many cancers
  - Top ranked target by NCI
- Fam65b: Small Rho family GTPase important in many inflammatory processes

Genes down-regulated in 6J mice

- Wdfy1: Regulates TLR3- and TLR4-mediated signaling pathways-activates transcription factors and production of inflammatory cytokines
- Nnt: Integral protein of the inner mitochondrial membrane that converts NADH to NADPH which is important in free radical detoxification
- Dynlt1: Component of the dynein motor complex. Regulates the length of primary cilia
- Efcab7: Component of the EvC complex at the base of the primary cilium. Positively regulates Shh signaling

Development & Evaluation of an Evidence-Based Mobile Health Caregiver Intervention for FASD

Christie L. M. Petrenko, Ph.D. & Cristiano Tapparello, Ph.D.

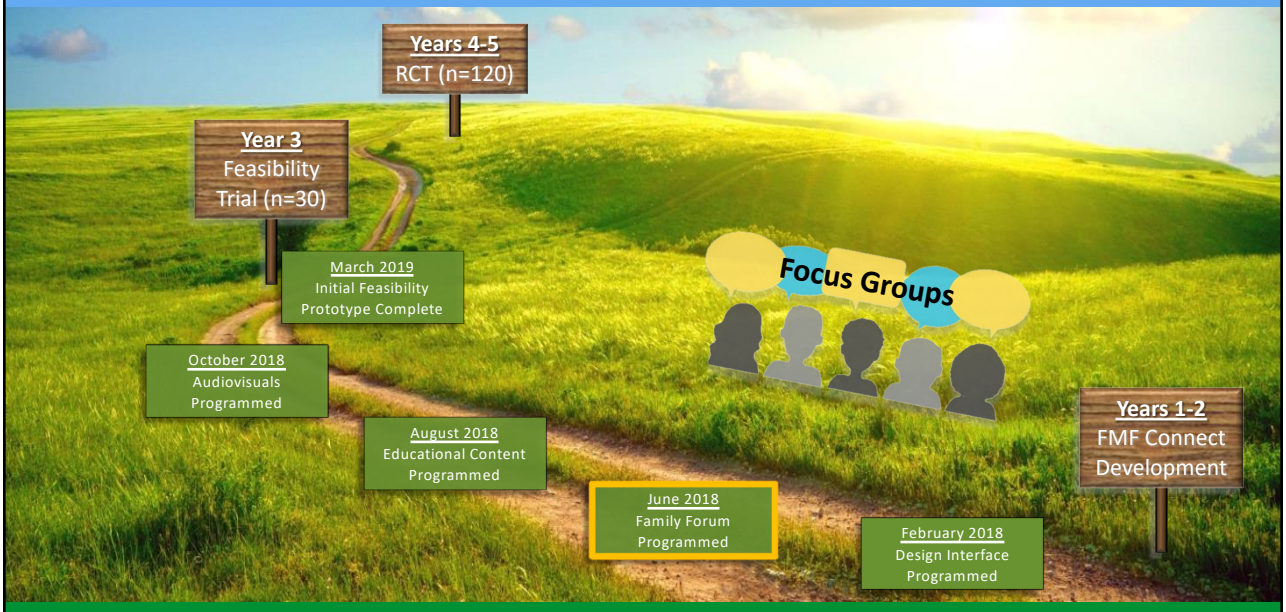
CIFASD Report - 06/15/2018

Mt. HOPE family center

UNIVERSITY of ROCHESTER

Project Timeline Overview

Families Moving Forward CONNECT



Families Moving Forward CONNECT

Progress Update

- Started production of audiovisual content
  - Filmed 6
  - 3 video shoots scheduled for next week in San Diego and Los Angeles, 2 more in Rochester for July
- Conducted 7 focus groups (thanks to other sites for their help!)
  - Rochester, Atlanta, Minneapolis, San Diego, Los Angeles
- Completed development of Family Forum
- Started implementation of learning module content

Families Moving Forward CONNECT

Publication Plan

- Conference paper on app development process to be submitted during the summer
- Proposing 90-minute symposia at the FASD Vancouver conference
- Publication related to data collected from focus groups after the summer

Families Moving Forward CONNECT

FMF Connect Team

Christie Petrenko, Ph.D.
MHFC / U. of Rochester

Cristiano Tapparello, Ph.D.
U. of Rochester

Heather Carmichael Olson, Ph.D.
SCRI / U. of Washington

Wendi Heinzelman, Ph.D.
U. of Rochester

Zhiyao Duan, Ph.D.
U. of Rochester

Jenn Parr
MHFC / U. of Rochester

Rebecca Van Dyke
U. of Rochester

2/5/2018 CIFASD Reporting - Christie Petrenko & Cristiano Tapparello 6

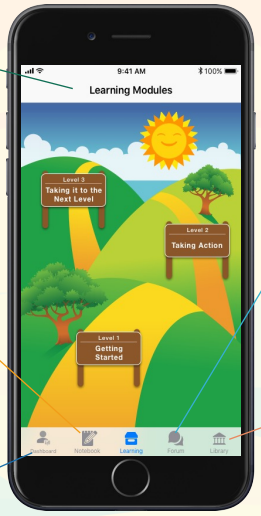
Families Moving Forward CONNECT

FMF Connect Components

Learning Modules
- 12 core modules, 3 levels
- Educational text/audio
- Exercises to practice content
- Animation and video

Notebook
- User builds personalized section for later reference
- Exercises about child, selected content, tools, notes

Dashboard
- Summary of progress
- Badges earned, child behavior ratings, usage metrics



Family Forum
- Users share ideas, ask questions, get support
- Organized in sub-forums
- Moderated by trained peers

Library
- Lists of books, websites, other resources
- Optional fact sheets

Families Moving Forward CONNECT

App Programming Progress

- Completed development of Family Forum
- Started implementation of learning module content

IMMUNE DYSREGULATION IN FASD: PROGRAMMING OF HEALTH AND NEUROBEHAVIORAL OUTCOMES

JOANNE WEINBERG, PHD
CO-I: TAMMY BODNAR, CHARLIS RAINEKI, TIM OBERLANDER
WITH CHRIS LOOCK, JAN LUTKE; CONSULTANTS BRENDA KNIGHT, JULIE CONRY
DEPARTMENT OF CELLULAR & PHYSIOLOGICAL SCIENCES
UNIVERSITY OF BRITISH COLUMBIA



CIFASD FACE TO FACE MEETING
JUNE 15, 2018

AIM 1: USE VALIDATION COHORTS TO CONFIRM THE UTILITY OF MATERNAL AND INFANT/CHILD IMMUNE PARAMETERS AS POSSIBLE BIOMARKERS FOR AND PREDICTORS OF ALCOHOL-RELATED HEALTH AND NEUROBEHAVIORAL OUTCOMES

LEVERAGE CIFASD RESOURCES: UTILIZE PLASMA SAMPLES COLLECTED IN OTHER CIFASD STUDIES

a) Extend collaboration with Chambers – new Ukraine cohort, *matched M-I pairs* → elucidate maternal influences on child outcomes.

→ Recruitment of new mother-infant cohort has begun in Ukraine – First set of samples for analysis to be shipped by end of 2018

b) Extend analysis to different cultural/ ethnic, SES, environmental conditions → insight into factors modulating alcohol's programming effects,

↓

i) Jones, Chambers, Mattson - Children ~5-17 being seen by Jones (Registry): Dysmorphology exam, blood sample, health survey; Banked maternal mid-trimester plasma samples and child newborn blood spots
ii) Wozniak – new child cohort for choline clinical trial

→ i) 156 families enrolled in San Diego. Certificate of confidentiality from NIAAA imminent. Appointments to begin within the next 2-3 wk. Samples to be shipped to us in batches of ~40
ii) 20 subjects completed

AIM 2. EXTEND ASSESSMENT OF IMMUNE AND NEUROBEHAVIORAL OUTCOMES INTO ADULTHOOD

- In Atlanta and Seattle – Two Tier Assessment :
  - Tier 1 (n=250/site). Demographic and Health Surveys done remotely; Registry developed
  - Tier 2. In subset from Registry (n=120), in-depth assessment of physical characteristics, dysmorphology, immune function (cytokines, health surveys), physical and mental health, behavioral, cognitive and adaptive functioning
- In Vancouver, no broad Registry; One Tier Assessment, all measures on/after Study Day (n=120):
  - Demographic and Health Surveys
  - In-depth assessment of physical characteristics, dysmorphology, immune function (cytokines, health surveys), physical and mental health, behavioral, cognitive, and adaptive functioning

PROGRESS TO DATE – PREPARATIONS FOR ADULT STUDY

SEPTEMBER 2017 – PRESENT:

- CREB (Clinical Research Ethics Board) approvals obtained; final revisions submitted (to be reviewed June 27)
- All UBC investigators have completed UBC and NIH ethics training
- Monthly (now weekly) calls with Claire/Therese teams and with Oberlander team - planning and logistics
- Research Assistant hired and trained
- Health Questionnaires developed for adults and children (the latter for Ken/Tina San Diego study)
- Instruments/questionnaires identified, ordered, received; iPads and tripod purchased; photo protocol from Peter Hammond - test photos to be taken
- Redcap license obtained, questionnaires entered
- Training on new hematology analyzer completed

PROGRESS TO DATE (CONT'D)

- Saliva collection protocol from Tatiana/Leah
- Cytokine panels identified – [40 + 7 (arthritis/inflammation)]
- Talks on adult study at Douglas College and UBC FASD meeting (the latter with Claire, [Therese])
- Consultation with Jan Lutke, Brenda Knight, Julie Conry to review recruiting materials, support and debriefing of participants, Study Day activities/logistics
- Ken Jones visited Vancouver for training with Chris Loock and Tim Oberlander to standardize dysmorphology exam
- Dysmorphology form for adults developed and finalized – reviewed by Ken
- Meeting with Elders and Leaders of Indigenous community
- Posters, banners, cards, etc printed and distributed for recruiting
- Practice for Study Day ongoing
- Practice Study Day with adult(s) with FASD to be completed in early July

VANCOUVER CIFASD ADULT COHORT - RECRUITMENT PROGRESS

Once … will begin - aiming for mid-end of July start
Goal is to test ~2-4 subjects/week

= 59 total to date

PUBLICATIONS AND PRESENTATIONS JUNE 2017-JUNE 2018:

MANUSCRIPTS:

- Bodnar, T.S., Raineki, C., Wertelecki, W., Yevtushok, L., Plotka, L, Zymak-Zakutnya, N., Honerkamp-Smith, G., Wells, A., Rolland, M., Woodward, T.W., Kable, J., Coles, C.D., Chambers, C.D., Weinberg, J., & the CIFASD. Altered maternal immune networks are associated with adverse child neurodevelopment: Impact of alcohol consumption during pregnancy. Brain Behav Immun 2018 May 5. [Epub ahead of print]
- Bodnar, T.S., Raineki, C., Wertelecki, W., Yevtushok, L., Plotka, L, Zymak-Zakutnya, N., Honerkamp-Smith, G., Wells, A., Woodward, T.W., Kable, J., Coles, C.D., Chambers, C.D., Weinberg, J., & the CIFASD. Immune disturbances following prenatal alcohol exposure:Implications for neurodevelopment (In preparation)

ABSTRACTS:

- Bodnar, T.S., Raineki, C., Wertelecki, W., Yevtushok, L., Zymak-Zakutnya, N., Chambers., C.D., Weinberg, J., & the CIFASD. Identifying an immune signature characteristic of fetal alcohol spectrum disorder. Society for Leukocyte Biology 50th Annual Meeting. October 5-7, 2017, Vancouver, BC. Poster 47

PUBLICATIONS AND PRESENTATIONS JUNE 2017-JUNE 2018:

PRESENTATIONS:

- Weinberg, J. Effects of prenatal alcohol exposure on health outcomes across the lifespan: From animal models to the clinic. FASD Collaborative Roundtable. Douglas College, New Westminster, BC, November 25, 2017
- Weinberg, J. Developmental origins of health and disease - DOHaD: Prenatal alcohol effects on brain and behavior. Department of Cellular and Physiological Sciences Research Retreat, January 20, 2018, Vancouver, BC.
- Raineki, C., Bodnar, T.S., Wertelecki, W., Yevtushok, L., Plotka, L., Zymak-Zakutnya, N., Wells, A., Honerkamp-Smith, G., Coles, C.D., Kable, J.A., Chambers, C.D., J. Weinberg, & the CIFASD. Alcohol consumption during pregnancy is associated with altered maternal and child immune function. Gordon Research Conference: Alcohol & the Nervous System, March 4-9, 2018, Galveston, TX
- Coles, C.D., Grant, T., Weinberg, J., and the Collaborative Initiative on FASD (CIFASD). Mapping the Undiscovered Country. Health and Mental Health in Adults with FASD. 8th International Research Conference on Adolescents and Adults with FASD. Review, Respond and Relate. Integrating Research, Policy and Practice Around the World, April 18-21, 2018, Vancouver, BC
- Bodnar, T., Raineki, C., Wertelecki, W., Yevtushok, L., Zymak-Zakutnya, N., Honerkamp-Smith, G., Wells, A., Woordward, T., Coles, C.D., Kable, J., Chambers, C., Weinberg, J., and the CIFASD. Alcohol intake and immune function: associations between maternal immune networks and child neurodevelopmental outcome. Symposium entitled: Predicting outcomes of fetal alcohol exposure in the CIFASD cohort. Organizers/Chairs: Charness, M. and Riley, E. Research Society on Alcoholism, San Diego, CA, June 16-20,2018.

NEUROIMAGING PROJECT UPDATE

JEFF WOZNIAK

UNIVERSITY OF MINNESOTA

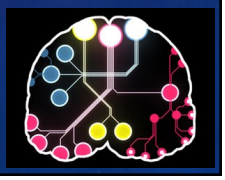
6-15-2018

AIMS

- Recruit 45 (PAE) 45 (control)
  - During the first 3 years
- Age range: 8 – 16 years old
- All receive dysmorphology
- MRI scan
- 3-hour neurocognitive / behavioral session testing
  - Including Dr. Mattson's short digital battery (iPads)
- 15 month interval, Second MRI scan

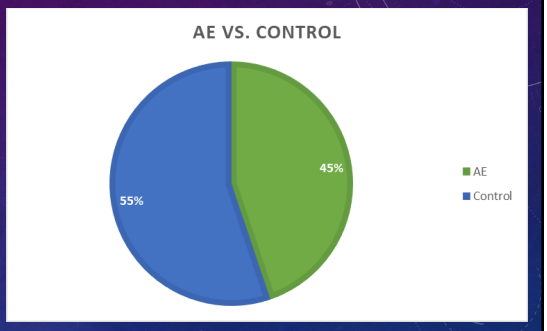
PHASE IV PROGRESS

- Coordinators hired and trained
- Imaging protocol developed
- IRB approved / actively enrolling
- Image analysis pipeline development underway
- Parallel – HCP Development project underway
  - 1000+ children using matching protocol



Progress:

- 29 Enrolled and completed first MRI scan and cognitive evaluation + 5 additional scheduled (34)
- May 31 goal = 30 (on/ahead of schedule)
- 34 / 90 = 38% of final target
- Longitudinal: Second scans (15 months) will begin March, 2019



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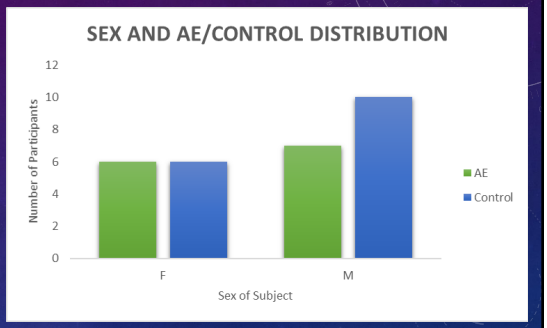

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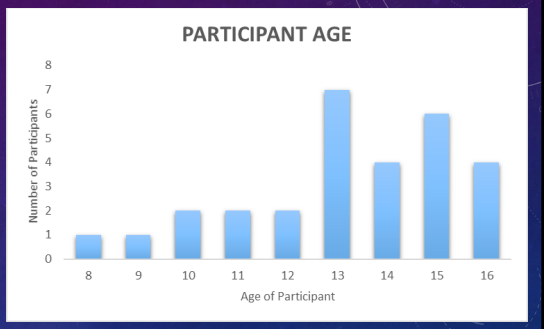


INTERACTIONS

BLOOD SAMPLES (WEINBERG PROJECT)

- Collecting blood for choline treatment study (pre and post)
  - Saving plasma for Dr. Weinberg
- N=33 collected thus far (24 unique individuals)

FACE (HAMMOND PROJECT)

- Collecting 3D faces (new handheld camera)
  - CIFASD + another study (N=41)

DYSMORPHOLOGY (JONES PROJECT)

NEUROBEHAVIOR (MATTSON PROJECT)

- All participants for imaging have "validation" neuropsych battery
- N=34

PHASE III DATA ANALYSES… ONGOING

Paper under review with Elizabeth Sowell

Uban, K.A., Kan, E., Wozniak, J.R., Mattson, S.N., Coles, C.D., Sowell, E.R. (revision under review). The relationship between socioeconomic status and brain development is attenuated in children and adolescents with prenatal alcohol exposure.

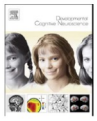
PHASE III DATA ANALYSES… ONGOING

Developmental Cognitive Neuroscience 30 (2018) 123–133

Contents lists available at ScienceDirect

Developmental Cognitive Neuroscience

journal homepage: www.elsevier.com/locate/dcn



Two-year cortical trajectories are abnormal in children and adolescents with prenatal alcohol exposure

Timothy J. Hendrickson[a], Bryon A. Mueller[a], Elizabeth R. Sowell[b,c], Sarah N. Mattson[d], Claire D. Coles[e], Julie A. Kable[e], Kenneth L. Jones[f], Christopher J. Boys[a], Susanne Lee[a], Kelvin O. Lim[a], Edward P. Riley[d], Jeffrey R. Wozniak[a,*]

[a] University of Minnesota, Twin Cities, USA
[b] Children's Hospital of Los Angeles, USA
[c] University of Southern California, USA
[d] San Diego State University, USA
[e] Emory University School of Medicine, USA
[f] University of California, San Diego, USA

PRESENTATIONS

April 18-21: 8th Annual International Research Conference on Adolescents and Adults with FASD: Vancouver, BC

PRESENTATIONS

May 26 – 30: 16th Annual World Infant Mental Health Congress, Rome

PRESENTATIONS

September 9-13 International Society on Biomedical Research in Alcoholism, Kyoto

MEDIA: PBS NEWS HOUR

- Interest triggered by Chambers, May, et al JAMA paper on prevalence
- Amna Nawaz filmed segments on brain imaging research, diagnosis (Eckerle), public awareness (MOFAS), and parenting (families raising kids with FASD
- Air date (two segments) possibly early July

SCIENCE
PBS NEWS HOUR

THANKS

- UMN: Timothy Hendrickson, Bryon Mueller, Kelvin Lim, Dan Keefe, Judith K. Eckerle, Birgit A. Fink, Marisa Whitley, Christopher J. Boys, Susanne Lee
- CIFASD investigators: Elizabeth Sowell, Sarah Mattson, Claire Coles, Julie Kable, Ken Jones, Kristina Uban, Eric Kan, Helen Yezerets, Bill Barnett
- The Minnesota Organization on Fetal Alcohol Syndrome (MOFAS)
- NIAAA for support and funding

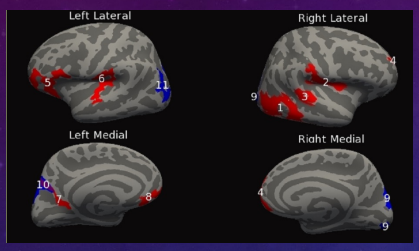
Longitudinal Brain Anomalies

- 58 PAE and 52 Control
- Ages 6 to 17 years
- Four sites (LA, San Diego, Minnesota, Atlanta)
- Two MRI scans – 2 years apart on average
- Multiple measures of cortex
  - Gyrification
  - Thickness
  - Surface Area Volume
- Symmetrized Percent Change (SPC)

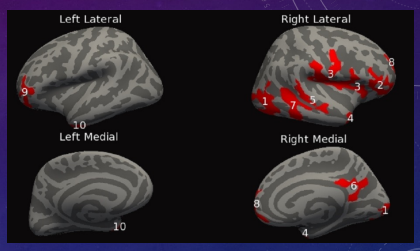
T. J. Hendrickson, B. A. Mueller, E. R. Sowell, S. N. Mattson, C. D. Coles, J. A. Kable, K. L. Jones, C. J. Boys, S. Lee, K. O. Lim, E. P. Riley, and J. R. Wozniak, "Two-year cortical trajectories are abnormal in children and adolescents with prenatal alcohol exposure." (revision under review).

LONGITUDINAL BRAIN ANOMALIES

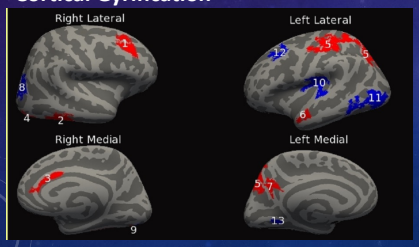
Cortical Thickness



Cortical Volume

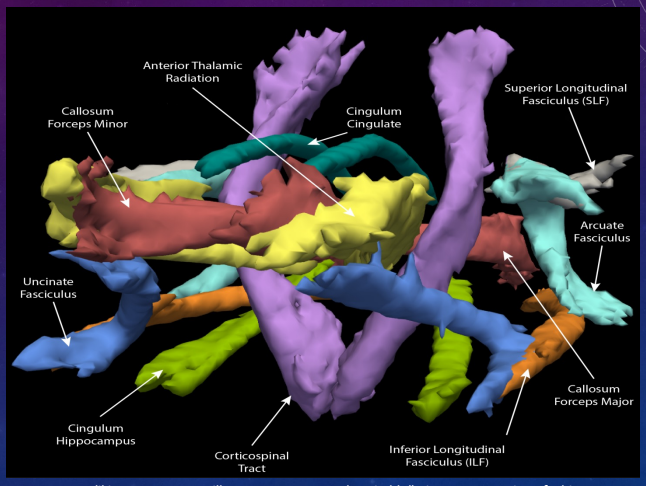


Cortical Gyrification



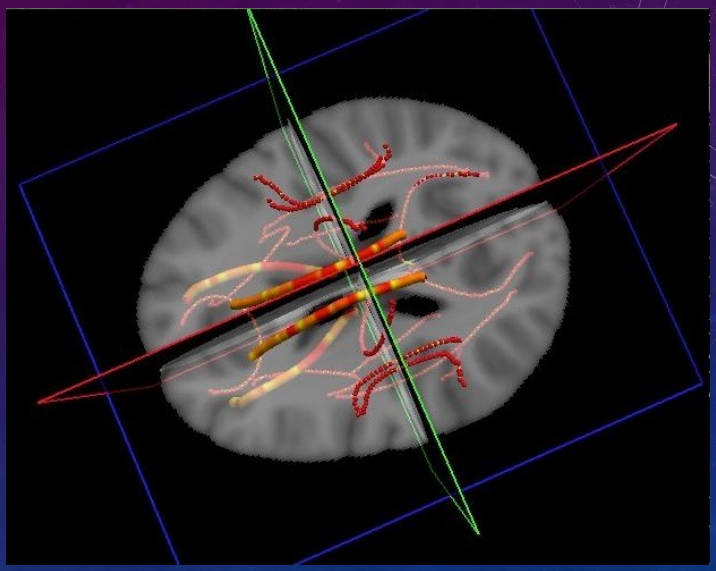
Thickness: PAE > Control change at older ages (change was thinning)
LGI: PAE < Control change (change was increasing curvature)
Volume: none
Surface area: none

ONGOING ANALYSIS: LONGITUDINAL TRACULA



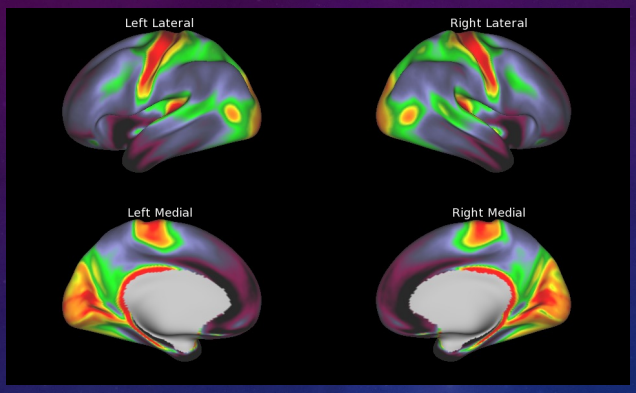
A. Yendiki, M. Reuter, P. Wilkens, H. D. Rosas, and B. Fischl, "Joint reconstruction of white-matter pathways from longitudinal diffusion MRI data with anatomical priors," *Neuroimage*, vol. 127, pp. 277–286, 2016.

LONGITUDINAL TRACULA

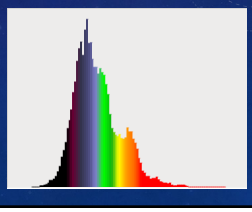


Ex. Colors indicate p-values reflecting symmetrized percent change in white matter integrity between time 1 and time 2

DATA COLLECTION IN PROGRESS: MYELIN MAPS



Human Connectome methods
Longitudinal assessment will be first of its kind in FASD
Backdrop: >1000 children in Development project + our own controls



Glasser MF, and Van Essen DC. (2011). Mapping human cortical areas in vivo based on myelin content as revealed by T1- and T2-weighted MRI. J Neurosci. 31:11597-11616

Peripheral RNA Biomarkers for Intellectual Disability in FASD

First year Progress & Plan:

Aim1: Mouse Biomarkers

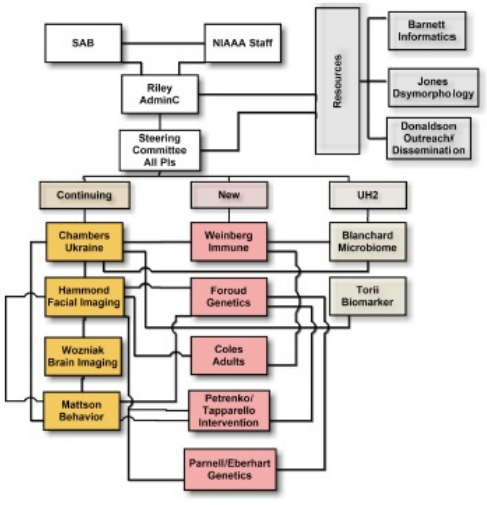
1. 120 RNA sequencing / behavior tests had been processed.
2. Compared multiple bioinformatics pipelines to obtain the most accurate data.
3. Defined set of biomarkers that show higher correlation of motor learning disability in each PAE animal.
4. The genes linked to intellectual disability are enriched. Immune response genes were also screened.
5. Will compare these biomarkers with the biomarkers in gestational diabetes model and prenatal opioid exposure model. Then submit a paper.
6. RNA seq data will be archived in GEO once the paper is published.
7. Related paper is in revision.

Aim2: Human Biomarkers

1. The analysis pipeline had been established.
2. Waiting blood sent from UCSD.
3. Will test biomarkers from mouse (supervised approach).
4. Will also perform unsupervised screening.

CIFASD4 Resource Sharing

CIFASD4 Interactions

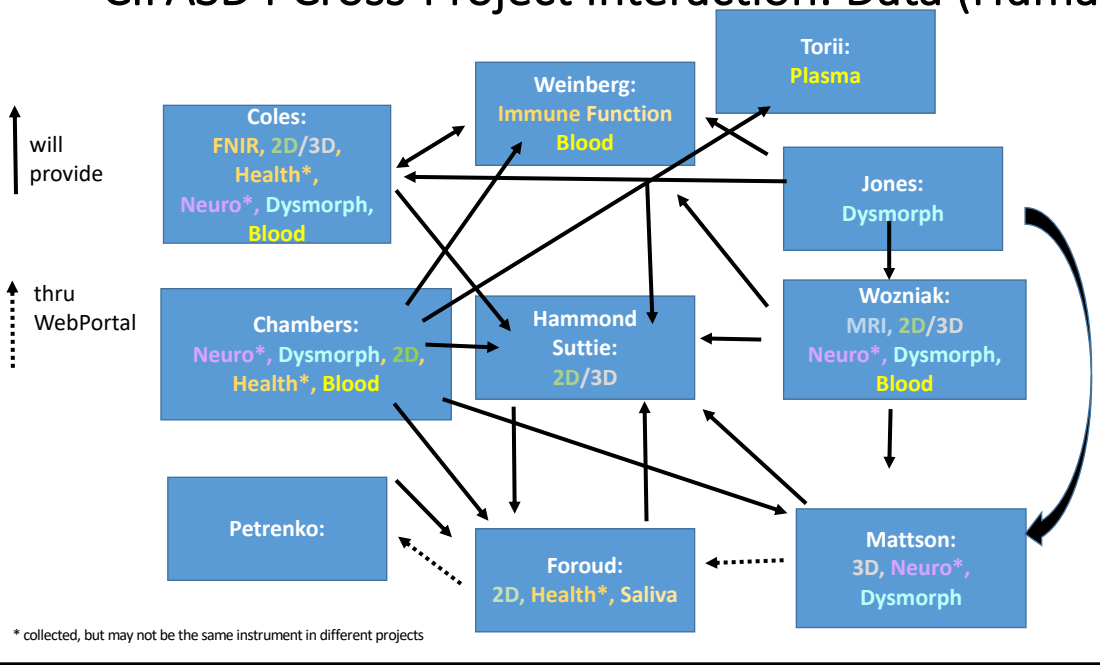


- **How to translate these interactions into action?**
  - Provide samples or data to other projects
  - Collect common data to allow for joint (cross-project) analysis
  - Share results between projects to provide replication or new insights
  - Recruit subjects for other projects

History of CIFASD Interactions and CIFASD4

- CIFASD4 has a different model from our previous CIFASD interactions
- Previous CIFASD interactions
  - Sites collected a common protocol (MRI, dysmorphology, neurobehavior, 3D facial image, saliva for DNA)
  - Data loaded into the Central Repository
  - Allowed data to be pooled across sites for joint analysis
- CIFASD4 projects typically are more independent
  - Fewer common protocols
  - Less focus on combining data across projects for analysis
  - Results often shared to inform other projects and guide hypotheses/analyses

CIFASD4 Cross-Project Interaction: Data (Human)



Human Data Collection

Phenotype	Chambers	Coles	Foroud	Hammond	Mattson	Petrenko	Weinberg	Wozniak
MRI								+
FNIR		+						
2D images	+	+	+	+	+	+	+	+
3D images	+			+	+			+
Health/Immune	+	+					+	
Neurobehavioral	+	+	+		+		+	+
Dysmorphology	+	+	+		+		+	+
Ultrasound	+			+				
Samples (blood, saliva, urine)	+	+	+		+	+	+	+

Few common protocols across the sites. Is it important to have this? Do we want to be able to address some questions across projects? Is it important to use common definitions of any key concepts?

What might be common elements across projects?

- Basic demographics
  - DOB
  - Sex at birth
  - Race
  - Ethnicity
- Definition of prenatal alcohol exposure
- Dysmorphology
- Environmental information
  - Marital Status (collect same information about partner)
  - Biological children
  - # people living in household
  - Level of education
  - Employment status and type of work
  - Monthly household income

Definition: Prenatal Alcohol Exposure (PAE)

PAE - EXPOSED	Foroud	Coles	Wozniak	Mattson	Torii	Petrenko	Weinberg	Chambers
Heavy (CIFASD3)	+	+	+	+	+			
Dysmorphology Exam/Records	+			+				
FASD dx	+					+	+	

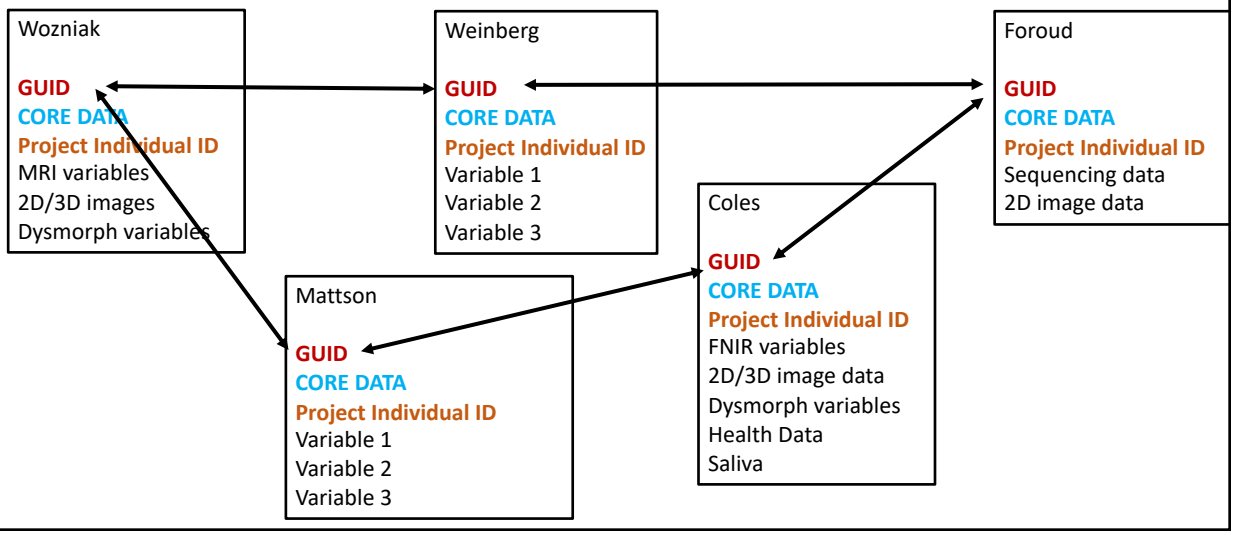
PAE - UNEXPOSED	Foroud	Coles	Wozniak	Mattson	Torii	Petrenko	Weinberg	Chambers
None	NA	+	+	+	+	NA	+	+
Minimal (CIFASD3)	NA	+	+	+	+	NA	+	+

NA = Not Applicable
(exposed sample only)

GUID: Globally Unique IDentifier

- NDAR (National Database for Autism Research) GUID
  - First name
  - Middle name (full legal name – no initials, nicknames)
  - Last name
  - Sex
  - Date of birth
  - City/municipality of birth (ONLY city, no state, country, etc)
- May require approval from site university
  - Indiana will provide template instructions
- Allows data sharing with no names; Same GUID generated each time this information is provided
  - If some information missing, can generate a pseudo GUID; would remove ability to identify individuals across projects

Data Sharing Example



Role of the Central Repository

Central Repository

- Stores data from CIFASD2, CIFASD3, and now CIFASD4
- Roles
  - Develop tools to submit data
  - Develop data dictionaries
  - Provide query and join (merge) capabilities to combine data across projects to address research questions
  - Provide query/merge to combine historical data with current data?
  - Facilitate sharing of data with external researchers

CIFASD4

- All projects in CIFASD are required to have a plan for data sharing.
  - Most projects wrote in their application that they will use the Central Repository
- How can we best use the Central Repository to facilitate interactions among the CIFASD investigators?
  - What needs to be in it?
- How can we best use the Central Repository to facilitate data sharing with external investigators?
  - What needs to be in it?

Central Repository and Internal CIFASD

- Current status for Central Repository in CIFASD4
  - Provided assistance to Tina Chambers project
  - Gathering protocol information for each project
- What do people want to get from the Central Repository for CIFASD4?
  - Data from other projects?
  - Results from other projects?
  - Protocol information from other projects?
  - Other?

Central Repository and Data Sharing

- Human Subjects: Informed Consent and Protocol
  - Need to have language in the informed consent that specifically indicates that de-identified data from the project will be shared with
    - CIFASD investigators
    - external approved researchers
  - For identifiable data (facial image) it is possible for this to be shared as well, but needs to be clearly stated that it is identifiable
  - Template language for data sharing was provided for DNA, facial images, easily modified for other data types
  - Protocol should specify that data/samples will be shared with approved researchers
- Recommend:
  - Central review of all Informed Consent Forms to ensure broad sharing language
    - Wozniak, Mattson, Weinberg, Foroud have uploaded their ICs to Redcap
    - NEED IC from: Chambers, Jones, Coles, Grant, Hammond, Petrenko
  - Draft consent elements available at CIFASD website

Central Repository and Data Sharing

- What about non-human data?
  - Should we also store raw data and/or results from animal studies? Assay results?

NIAAA Data Archive ($NIAAA_{DA}$)

- Not required for CIFASD4, but would be for CIFASD5
  - Would be wise to prepare for this now
- Human subjects research only
- Submit electronic, de-identified data from human subjects
  - Obtain informed consent for broad sharing of de-identified data
  - Collect personally identifiable information (PII) to create the NDA Global Unique Identifier (GUID)
    - Get an NDA account for access to the GUID tool
  - Costs to prepare data for submission can be included as a grant expense
  - Data embargo is 2 years after the end of the grant
- CIFASD5 could use the Central Repository to work with the $NIAAA_{DA}$?

NOT-AA-18-010

Opportunities for Cross-Center Interactions

San Diego, June 15, 2018

UNM NEW MEXICO ALCOHOL RESEARCH CENTER

About Us | Members | Research | Training Opportunities | Donate | Seminars | Resources | FASD Awareness Day 2017

NMARC's central focus is on understanding the **neurobiological mechanisms underlying the behavioral problems associated with FASD**, and to use this knowledge to help develop better methods of early diagnoses and more effective interventions for patients with FASD.

NMARC's prevailing philosophy is that a research center organized to maximize the coordination, communication and synergistic integration across multiple lines of preclinical and clinical investigation provides the best long-term prospect of achieving significant progress towards the dual clinical goals of better diagnosis and more effective interventions for patients with FASD.

kids brain health network

formerly NeuroDevNet

ENGLISH | FRANÇAIS

About

Research
Autism Spectrum Disorder
Cerebral Palsy
Fetal Alcohol Spectrum Disorder
Neuroethics
Neuroinformatics
KBHN RFA 2017

Training & Education

Events & Workshops

News & Publications

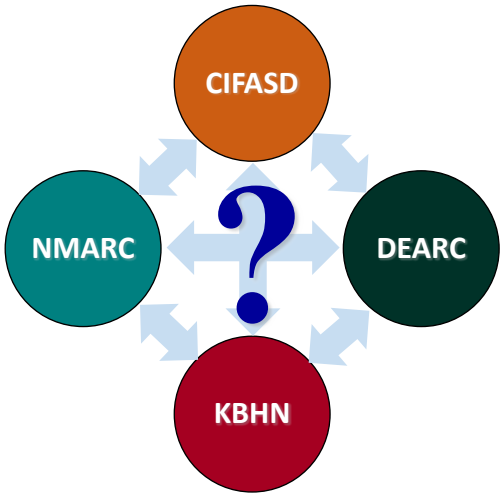
Research currently focuses on three neurodevelopmental disabilities

- autism spectrum disorder
- cerebral palsy
- **fetal alcohol spectrum disorder**

Each program includes investigators with a range of expertise - brain imaging, interaction of genetics and environment, clinical management of neurodisabilities, and animal modeling of brain-based disorders.

Our service cores provide advice and support in:

- neuroethics
- neuroinformatics
- knowledge translation



Overlapping Foci / Expertise

CIFASD:	DEARC:	NMARC:	KDHN:
Clinical Studies **Animals Models** (Clinic Affiliates)	**Animal Models**	**Animal Models** **Clinical Study** (Clinic Affiliates)	**Animal Models** **Clinical Studies** **Clinical Services**

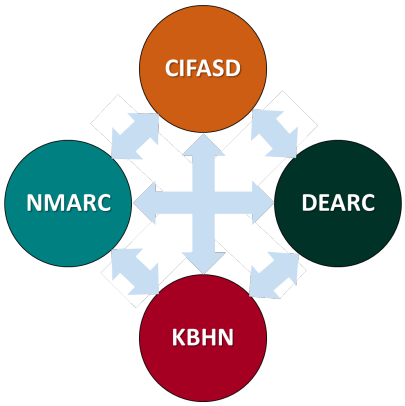
Common Leaders,

CIFASD:	DEARC:	NMARC:	KDHN:
Ed Riley	Terry Deak	**Dan Savage**	**James Reynolds**
Michael Charness	Linda Spear	Fernando Valenzuela	*et alia*

Some Possible Opportunities for Interaction?

- Joint Thematic Symposia and/or Workshops
- Research Collaboration
  - Direct; Shared Specimens; Pooled data
- Review of each other's pilot grant applications
- Cross-Lab Training

Next Steps? Responsibilities? Timeline?



CIFASD4 Progress Tracking

Update: June 15, 2018

Goal = A way to chart progress so we all get to the finish line together <5 years!

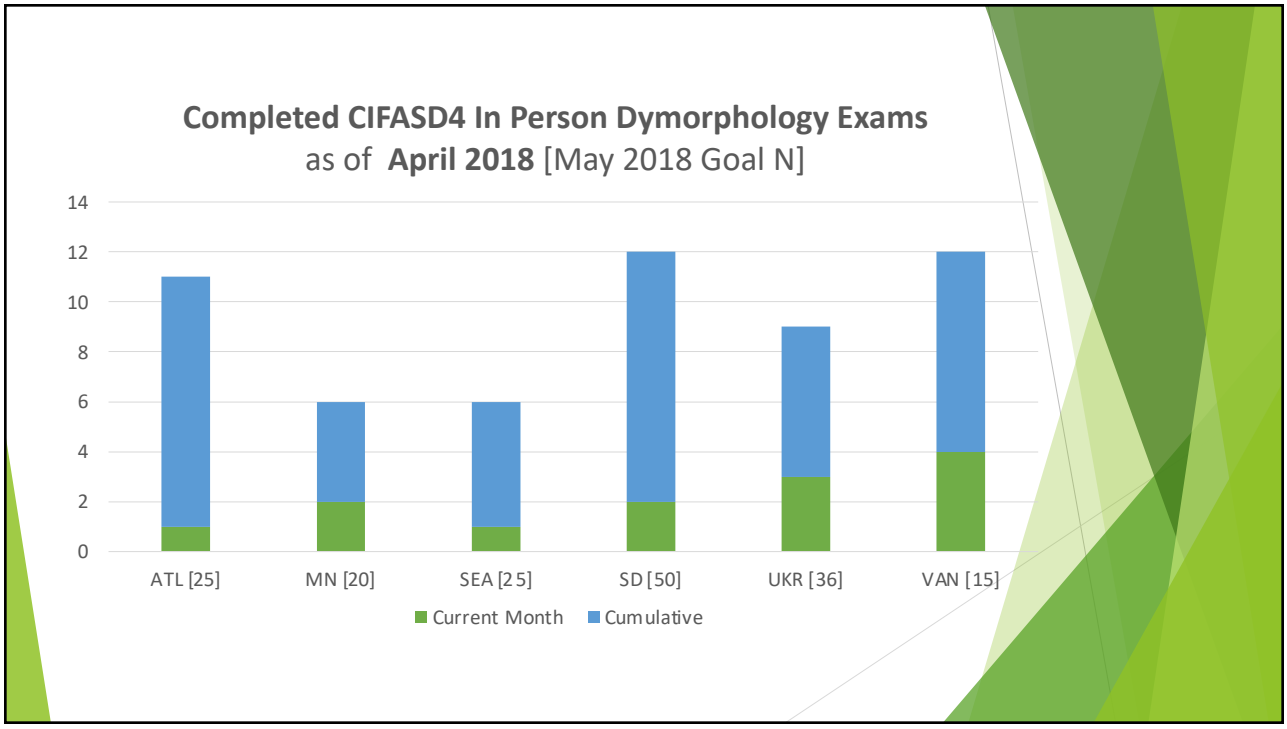
- Focus on **DATA and SAMPLES**
  - **Measurables** that will lead to **publications**
    - Subjects recruited, tested, referred
    - Samples collected, shared, analyzed
- **NOT** interested in minutia
  - Completed? % or monthly progress
  - **NOT** a diary of the steps to the goal
  - Goal ≠ micromanagement

Needed Details

- GOALS
  - Cumulative Goal Ns per year end of each year MAY 2018, 2019, 2020, 2021 and 2022
  - Overall N Goal
  - Goal Completed Date
- Actual Ns or Completion Percentages
  - Current Month = through May 2018 [End of YR1]
- Any information you think might be useful to include on your table (e.g., data being collected in batches once every X months or if your numbers don't match those detailed in your grant proposal – explain why)

Jones U24 Dysmorphology Core	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal
In Person Dysmorphology Exams					
Atlanta	2	20	25	80.0%	120
Minnesota					90
Seattle					120
San Diego					260
Ukraine					180
Vancouver					80
Telemedicine					
Minnesota (convergent validity)					48?
San Diego (convergent validity)					48?
San Diego (reliability of telemedicine)					32
San Diego (training telemedicine)					15
Minnesota (application in remote areas)					TBD?
New Mexico (application in remote areas)					TBD?
Oxford, England					TBD?
Rochester					TBD?
San Diego FASD Research Subject Pool					
Number of subjects recruited					400
Training					
Number of physicians trained					TBD?
Date of Update:					

Jones U24 Dysmorphology Core	Overall Goal	May 2018 Goal	May 2019 Goal	May 2020 Goal	May 2021 Goal	May 2022 Goal	Completion Goal Date
In Person Dysmorphology Exams							
Atlanta	120						5/31/22
Minnesota	90						5/31/20
Seattle	120						5/31/22
San Diego	260						5/31/21
Ukraine	180						5/31/22
Vancouver	80						5/31/21
Telemedicine							
Minnesota (convergent validity)	48?						5/31/20
San Diego (convergent validity)	48?						5/31/20
San Diego (reliability of telemedicine)	32						5/31/21
San Diego (training telemedicine)	15						5/31/21
Minnesota (application in remote areas)	TBD?						5/31/22
New Mexico (application in remote areas)	TBD?						5/31/22
Oxford, England	TBD?						5/31/22
Rochester	TBD?						5/31/22
San Diego FASD Research Subject Pool							
Number of subjects recruited	400						5/31/22
Training							
Number of physicians trained	TBD?						5/31/22



Chambers U01 Ukraine	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
Newly Recruited Mothers						
Exposed mothers					120	5/31/20
Low/unexposed mothers					80	5/31/20
Neurobehavioral Testing						
School age exposed					80	5/31/21
School age low/unexposed					70	5/31/21
6 mo. old infants exposed					80	5/31/21
6 mo. old infants low/unexposed					40	5/31/21
12 mo. old infants exposed					60	1/1/22
12 mo. old infants low/unexposed					40	1/1/22
Blood Samples Collected						
Infants exposed					80	5/31/21
Infants low/unexposed					60	5/31/21
School age children exposed					40	5/31/21
School age children low/unexposed					30	5/31/21
2D Ultrasounds						
Exposed mothers					120	5/31/20
Low/unexposed mothers					80	5/31/20
3D Images						
Exposed school age children					35	5/31/21
Low/unexposed school age children					30	5/31/21
Date of Update:						

Weinberg U01 Immune Dysregulation	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
Cytokine Samples Received - Mother-Infant Pairs and Children Plasma Samples						
Ukraine - Chambers						
PG Mother AE					30	5/31/20
PG Mother CON					30	5/31/20
Infant at birth AE					30	5/31/20
Infant at birth CON					30	5/31/20
San Diego - Chambers and Jones						
Biobank 3rd-tri mother and infant at birth AE					40	5/31/21
Biobank 3rd-tri mother and infant at birth CON					40	5/31/21
Child (age 5-17) AE					40	5/31/21
Child (age 5-17) CON (Mattson identified?)					40	5/31/21
Minnesota - Wozniak						
Child (age 2.5-5) AE Placebo					30	5/31/21
Child (age 2.5-5) CON Choline					30	5/31/21
Cytokine Samples Received - Adult Samples						
Vancouver Adults (Weinberg and Oberlander)						
Adults FASD					40	5/31/20
Adults AE					40	5/31/20
Adults CON					40	5/31/20
Atlanta Adults (Coles)						
Adults FASD					40	5/31/21
Adults AE					40	5/31/21
Adults CON					40	5/31/21
Seattle Adults (Grant)						
Adults FASD					40	5/31/21
Adults AE					40	5/31/21
Adults CON					40	5/31/21
Adult Testing						
Vancouver Adults (Weinberg and Oberlander)						
Tested FASD					40	5/31/20
Tested AE					40	5/31/20
Tested CON					40	5/31/20
Date of Update:						

Weinberg Analyzed Samples	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
Cytokine Samples Analyzed- Mother-Infant Pairs and Children Plasma Samples						
Ukraine - Chambers						
PG Mother AE					30	5/31/20
PG Mother CON					30	5/31/20
Infant at birth AE					30	5/31/20
Infant at birth CON					30	5/31/20
San Diego - Chambers and Jones						
Biobank 3rd-tri mother and infant at birth AE					40	5/31/21
Biobank 3rd-tri mother and infant at birth CON					40	5/31/21
Child (age 5-17) AE					40	5/31/21
Child (age 5-17) CON (Mattson identified?)					40	5/31/21
Minnesota - Wozniak						
Child (age 2.5-5) AE Placebo					30	5/31/21
Child (age 2.5-5) CON Choline					30	5/31/21
Cytokine Samples Analyzed - Adult Samples						
Vancouver Adults (Weinberg and Oberlander)						
Adults FASD					40	5/31/20
Adults AE					40	5/31/20
Adults CON					40	5/31/20
Atlanta Adults (Coles)						
Adults FASD					40	5/31/21
Adults AE					40	5/31/21
Adults CON					40	5/31/21
Seattle Adults (Grant)						
Adults FASD					40	5/31/21
Adults AE					40	5/31/21
Adults CON					40	5/31/21

Coles U01 Adults	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
Enrollment						
Number of adult registry enrollees (Atlanta and Seattle)					500	5/31/22
Completed Questionnaires - Demographics and Health						
ATL Qs completed - FASD					40	5/31/21
ATL Qs completed - AE					40	5/31/21
ATL Qs completed - CON					40	5/31/21
SEA Qs completed - FASD					40	5/31/21
SEA Qs completed - AE					40	5/31/21
SEA Qs completed - CON					40	5/31/21
Tier 2 (YRS 2-5)						
Medical Record, Urine Sample and NB (NIH Tool Box and Qs)						
ATL MR, US and NB - FASD					40	1/1/22
ATL MR, US and NB - AE					40	1/1/22
ATL MR, US and NB - CON					40	1/1/22
SEA MR, US and NB - FASD					40	1/1/22
SEA MR, US and NB - AE					40	1/1/22
SEA MR, US and NB - CON					40	1/1/22
Date of Update:						

Hammond U01 2D/3D Images	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
2D Images Received						
Web Portal - Foroud						
Atlanta - Coles						
Ukraine - Chambers						
Vancouver - Weinberg						
3D Images Received						
Minnesota - Wozniak						
Ultrasound and 3D Images Received						
Aiton sample - 135 per year						
Ukraine - Chambers						
Date of Update:						

Foroud U01 Genetics	% Complete	Completion Goal Date
DiG FASD Aim 1: Develop web portal YEARS 1 and 2		
Develop consent form		1/31/18
Develop Case Report Form (study questionnaire)		1/31/18
Develop procedure for collecting prior FASD evaluations for participants		2/28/18
Develop saliva collection system		3/31/18
Develop assent video		4/30/18
Finalize data dictionary with CIFASD Informatics Core		4/30/18
Establish file transfer with CIFASD Central Repository		4/30/18
Develop protocol, video and interface for collecting 2D facial images		4/30/18
Develop risk score from facial imaging data		4/30/18
Develop study web portal		4/30/18
Final IRB approval for protocol, paper and video consent/assent, HIPAA, and study materials		5/31/18
Publicize study through NOFAS, other support groups, FAS-related websites		6/30/18
Develop materials to make participants aware of other CIFASD studies		6/30/18
Implement FONS (in collaboration with S. Mattson)		10/31/18

Foroud U01 Genetics	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
DiG FASD Aim 2: Whole Exome Sequencing						
CIFASD3 sample genetic analysis completed					N?	1/31/22
Genetic analyses performed in CIFASD project nominated genes					N?	3/31/22
Genome-wide genetic tests performed					N?	4/30/22
Genes of interest shared with other CIFASD projects					N?	5/31/22
Online Web Portal Participants						
Number of participants enrolled in the Web Portal					2000	7/31/21
Number of enrollees who provided consent via the Web Portal					2000	7/31/21
Participants who uploaded 2D facial images					2000	7/31/21
Participants who returned saliva samples					2000	8/31/21
Saliva samples sequenced at IU Sequencing Core					700	12/31/21
Date of Update:						

Petrenko/Tapparello U01 Intervention	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
Focus Group Enrollment - YEARS 1 and 2						
Number of participants enrolled					20*	2/28/19
Number of groups conducted					6	2/28/19
Initial Feasibility Test - YEARS 1 and 2						
Number of participants enrolled					5	5/31/19
Number of interviews completed					5	5/31/19
Date of Update:						

*The number of and final sample size for focus groups will depend on data saturation in iterative thematic

Petrenko/Tapparello U01 Intervention	% Complete	Completion Goal Date
FMF Connect App Development Major Milestones - YEARS 1 and 2		
Design interface programmed		1/31/18
Family Forum programmed		5/31/18
Psychoeducational content written & programmed		7/31/18
Audiovisuals produced & programmed		9/30/18
Initial Feasibility Prototype complete		2/28/19

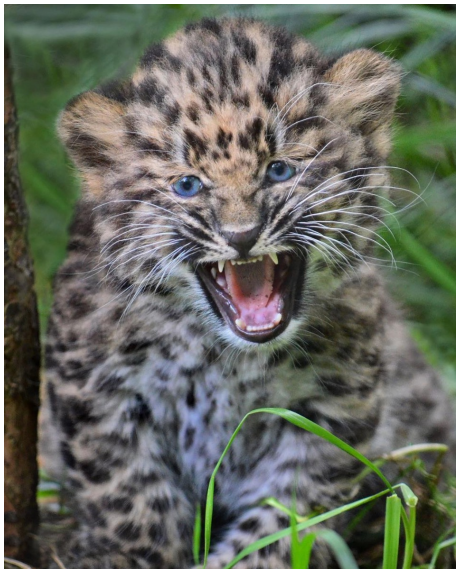
Wozniak U01 Neuroimaging	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Completion Goal Date
MRI Scan #1						
MRI Scan #1 - PAE			15		45	5/31/20
MRI Scan #1 - CON			15		45	5/31/20
Cognitive Evaluation (Mattson NB Battery)						
Cognitive evaluation - PAE			15		45	5/31/20
Cognitive evaluation - CON			15		45	5/31/20
MRI Scan #2						
MRI Scan #2 - PAE			0		30	1/1/22
MRI Scan #2 - CON			0		30	1/1/22
Date of Update:						

Mattson U01 Neurobehavior	Current Month	Cumulative Total	May 2018 Goal	% to Goal	Overall Goal	Goal Date
Aim/Source						
eTree Validation & Subjects						
1a: CIFASD Ukraine - AE, CON	0	0	250	0.0%	250	5/31/18
1a: CoFASP San Diego - AE, CON	0	0	994	0.0%	994	5/31/18
1b: UCSD FASD - AE	0	0	40	0.0%	260	5/31/22
1b: Psych Clinic - CON [YRS 3 & 4]	n/a	n/a	n/a	n/a	50	5/31/21
1b: Dev'l BX Psychiatry - CON [YRS 3 & 4]	n/a	n/a	n/a	n/a	50	5/31/21
1b: CIFASD MN - AE	0	0	23	0.0%	45	5/31/19
1b: CIFASD MN - CON	0	0	23	0.0%	45	5/31/19
Validation subjects YRS 1-5						
1c/2b: CBT San Diego - AE	0	0	5	0.0%	50	5/31/22
1c/2b: CBT San Diego - T-CON	0	0	5	0.0%	50	5/31/22
1c/2b: CBT San Diego - B-CON	0	0	5	0.0%	50	5/31/22
Online FONS YRS 2-5						
2a: WebPortal	0	0	0	#DIV/0!	2000	5/31/22
Date of Update:	6/15/18					

Actions Steps

- Jill will email each project their current CIFASD4 Progress Tracking table in Excel by tomorrow (Saturday) night… or the whole sheet and just update your tab.
- Update it as you see fit.
- Be sure to include CUMULATIVE Year End Ns for each YR (May 2018-2022) and the Overall N for each measure.
- Enter your project's actual Ns and completion percentages for data collected and tasks completed through May 31, 2018 in the current month column.
- Email Jill your revised CIFASD4 Progress Tracking table in Excel no later than Tuesday, June 26th, 2018 so she can prepare all tables for discussion during the June 27th monthly meeting.

Or else… you meet this Jill. ☺



Spreadsheet Table/Chart Format FOCUS

- Table/chart should **QUANTIFY** each deliverable, be visually **simple** and **easily point to progress** (per aim, monthly, etc.)
- Clearly state the **flow chart for shared samples** and include timelines that are easy to monitor
- Include collaborations and timelines
- Keep it **clean** and **clear**
  - Eliminate redundancies
  - Rungs in the ladder steps are not needed