4DN Steering Committee Meeting
June 18th, 2019
8am - 9:30am PT, 10am-11:30am CT. 11am-12:30pm, ET

Play recording

Discussion Leader: Andrew Belmont

APPROVED: 5/21/2019 MEETING MINUTES [TIMESTAMP – 00:00:01]

Reminders:

1. Registration for the 4DN Annual Meeting is on June 1, 2019.
2. Send OH (Kara Johnson) for questions about Twitter.
3. PIs are encouraged to send a message to OH when posting a paper in the BioRx.
4. SOPs are available in the Cell Lines Wiki page.

Last SC meeting (Job Dekker) [TIMESTAMP – 00:00:55]

1. Give your input to OH about the annual meeting.
2. Respond to requests from DCIC with the table they are developing for plans to submit data.

Announcements from NIH (Judy/Olivier/Ananda) [TIMESTAMP – 00:01:10)

1. None.

OH update (Kate) [TIMESTAMP – 00:01:45]

1. Annual meeting logistics: (as of 6/17/19)
    a. **Total number of registrants:** 21 (all 4DN members)
    b. **Total number of hotel reservations:** 3 guests
        i. Registration can be found in Wiki, 4DN Portal and through the ASCB website.
        ii. Another meeting reminder will be sent by OH on July 1st.
    c. 4DN portal
    d. ASCB Satellite meeting link

DCIC update (Burak Alver) [TIMESTAMP – 00:03:34]

1. Slides
    a. Call for data generation milestone has led to a flurry of data submission activity. We will report tomorrow and the coming months.
    b. 9 new 4DN experiment sets have been released since May 21st.
    c. In the last SC call, efforts to curate 4DN experiment assays was introduced. As we discussed, there are many different experimental methods are being developed and improvised by 4DN and we think it is worth our efforts to categorize them to make it easier for different groups to digest. This can be utilized to create a hierarchy of experiment types and can be turned in an encyclopedia of different assay types. We built a couple of examples to display how this can look like. We made a call to the network to help us build.

d. One of the side efforts to this is to also build the Ontology for experiment assays to add to the experimental factor ontology, all the different protocols and methods that are being developed in 4DN.
e. Overall, there are three different goals to this effort:
i. A standardized three-tier hierarchy of experiment methods that can be used in the portal
ii. An encyclopedia of assays
iii. Updates to EFO (experiment factor ontology).
f. We presented this at SC and JAWG. We sent an email to the Network and relevant labs. All feedback has been incorporated. There are related assays that are not utilized by 4DN are not incorporated (i.e. assays similar to chip and Margi).

2. Data Generation Plans
   a. Milestones for Year 5 of the project.
   b. Facilitating tracking of expected data submissions. Make sure that centers are reporting their generation plans to NIH. For DCIC to have a sense of the expected data submission so that we can track them.
   c. We contacted PIs and requested to provide Year 1-5 data submission plans. If you have not received a request, please let us know.
   d. Responses are shared with NIH POs.
3. Data processing pipelines
   a. ENCODE 4 has released ChIP-seq/ATAC-seq/RNA-seq pipelines. They are still in flux. Bwa may not be optimal for longer reads. QC reporting improvements are planned.
   b. We have implemented the ENCODE4 pipeplines. Proposal: continue using these pipelines through 4DN-I.
   c. Hi-C boundary score and compartment score calling. Hi-C data sets ranging from 1M to 5B reads requires careful benchmarking.
   d. *Suggestion from Andrew Belmont:* "I thought that the curation of methods was wonderful. I was thinking if you can do it the reverse way, where you have various methods and describe what they measure. It may be worthwhile to have things that you want to measure and have a list of methods that can be used for them. I'm thinking of a person new to the field that would be having scientific questions and not know anything about the different methods." *Burak:* "Great suggestion. If you have any more specific suggestions on how that would look like, we'd be happy to implement."

JAWG/DAWG (Job Dekker) [TIMESTAMP – 00:12:55]

1. We have weekly meetings on Thursdays. We cancelled the meetings the last couple of weeks because we did not have any agenda. We had three calls since the last SC meeting:
   a. Presentation from DCIC from the pipelines and method hierarchies
   b. Our center presented some of the comparative analysis we have done to compare micro-c and Hi-C that is a manuscript submitted in the bioRxiv. It is one of the first examples of omics to omics comparison which is one of the goals of the Joint Analysis

project.

c. We also had a guest speaker, Thomas Bishop presented a data visualization tool - G-dash that they wanted to show to the 4D Nucleome community. They are not a part of us but they wanted to reach out to the community.

2. We hope to get more participation from the individual groups in the coming weeks to give us updates at the JAWG call on their ongoing analyses of data generated with the Tier 1 cells as part of the JA project. We would like to get more presentations.

NOFIC (Bing Ren) [TIMESTAMP – 00:15:07]

1. Slides
    a. Update on the NOFIC-AICS Collaborative project. Reminder of the specific aims:
        i. Imaging nuclear proteins in live cells using a common iPSC line WTC-ll.
        ii. Analyze the chromatin structure of the same human iPSC line.
        iii. Integrating live cell imaging data with chromatin omics data to build models of chromatin architecture in the iPSC line.
2. NOFIC Data production efforts
        i. Includes 2 clones of WTC-11 iPSC line made available by Allen Institute for Cell Sciences through Corielle. There are at least five types of data that will be generated through this effort. The first is Hi-C and Micro-C data from Job's lab. Libraries have been generated, sequenced at shallow depth, all of high quality. Deep sequencing is still ongoing.
        ii. HiChip/Plaq-seq from two clones of WTC-11 AAVS1-GFP line (H3K4me3, H3K27ac, CTCF, RNAP) to be produced Bing Ren's lab. Project is delayed due to cell culturing in our facility but cells are expected to be harvested by this month and date to be produced at the end of July.
        iii. Repli-Seq of WTC-11 parental line to be produced by David Gilbert's lab is already generated and deposited. This is done prior to agreement that we are going to work with two clones of the WTC-11 so the data was also corresponding to the parental line.
        iv. Sci-HiC from two clones of WTC-11 AAVS1-GFP line being generated by Jay Jay Shendure and Charles Murry's lab. Status is delayed due to media issues. Library to be made in early July.
        v. We also anticipate the ChIA-PET data but the status is to be determined.
3. Imaging data and resources from AICS (picture in slides). Six clones cells have been engineered and the clones have been made available as well as the imaging data. PCNA in edited population stage. Smc1, Sox2, imaging ongoing. Label free models for speckles developed. Plan to present in coming NOFIC-AICS meetings.
4. Data Analysis Groups within this collaborative effort have been active. There have been monthly presentations:
        a. May 17: "Domain annotation through a joint model of chromatin state and chromatin conformation" (Libbrect lab)

b. April 19: Alber lab presentation
c. April 19: Neretti lab presentation

Scheduled:

a. June 21: Noble lab presentation (Ritambhara Singh, Cx Qiu)
b. June 21: Ma lab presentation (Ben Chidester)

5. Issues that came up:
    a. Cell cycle synchronization? Solution: single cell Hi-C data would help. Cell cycle marker assisted sorting. Various strategies have been proposed and we are in the process of how that would be done. Likely to be a challenging aspect of the data that we need to think about carefully.
    b. Conference all frequency: Change from three times a month to twice a month (2nd and 4th Friday).

Policy (Nils Gehlenborg) [TIMESTAMP – 00:23:36]

1. We now have 159 pre-prints in the bioRxiv channel. We have additional number of pre-prints in other archives, so we are well above 159.
2. We have not had any meetings lately because there was simply no need to discuss any of the policies and we have not had any issues with any of the existing policies.
3. If you have any issues, please let us know.

New/Other Business (Andrew Belmont) [TIMESTAMP - 00:24:35]

1. If some of us want to do workshops and use the ASCB (Saturday, the day before the ASCB meets) should we arrange something through the 4DN or through ASCB? *Judy*- I think in general, it should be done through the ASCB.

Action items [TIMESTAMP – 00:25:50]

1. Look at the portal and Wiki and register for the meeting.