COGR Updates WebEx

To participate in the live feedback survey please go to: www.polleverywhere.com/cogrmanager699

OR

Text "COGRMANAGER699" to 37607

Aims of the COGR:

- 1. Design of variant assessment procedures
- 2. Data extraction and transfer
- 3. Data access and dissemination

Variant Assessment Tool (VAT)

- The VAT is an excel based tool to semi-automatic the process of variant assessment
- It helps streamline and standardize variant assessment
- The VAT provided by COGR is adapted from Partner's Healthcare
- SOP for the tool to be made available
- The VAT is available at: http://opengenetics.ca/resources/
- Note: The VAT takes advantage of the Alamut software currently with the goal of integretion with GeneInsight

Q: Will the VAT be a useful tool for your laboratory?

A- Yes, I am using it

B- Yes, but I haven't yet implemented it

C- No, I have my own variant assessment protocol

D-No, it is too complicated/time consuming

E- No, I am not interested at this time

F- I am undecided

Q: What would be most helpful for you in regards to understanding the VAT?

A-I am comfortable using the VAT

B- I would like a WebEx demo

C- I would like a detailed SOP

D- I am not interested in using the VAT at this time

Please email us to set up a WebEx demo of the VAT if you are interested

COGR storage and sharing

- The COGR Consensus
 Database holds variants
 with consensus
 classifications across labs
- Sharing is optional at the discretion of the lab and only enabled upon request



Organization	Upload Status	Sharing status	
Alberta Children's Hospital, Calgary AB	Uploading	-	
British Columbia Cancer Agency, Vancouver BC	Pending	-	
Children's & Women's Health Centre of BC, Vancouver BC	Pending	-	
Children's Hospital of Eastern Ontario, Ottawa ON	Uploaded	Sharing	
Credit Valley Hospital, Trillium Health Centre, Mississauga ON	Uploaded	Sharing	
Impact Genetics Inc., Bowmanville ON	Pending	-	
McGill University Health Complex, Montréal QC	Uploaded	-	
SickKids Hospital and McLaughlin Centre, Toronto ON	Uploaded	Sharing	
Hamilton Health Sciences, McMaster University, Hamilton ON	Pending	-	
Memorial Health University Medical Center, St. John's NL	Pending	-	
Mount Sinai Hospital, University of Toronto, Toronto ON	Uploaded	Sharing	
North York General Hospital, Toronto ON	Pending	-	
Ontario Institute of Cancer Research (OICR), Toronto ON	Uploading	-	
Kingston General Hospital, Queen's University, Kingston ON	Uploaded	Sharing	
Dept of Medical Genetics, University of Alberta, Edmonton AB	Uploading	-	
Regional Health Authority, University of Manitoba, Winnipeg MB	Pending	-	
Sainte-Justine Hospital, University of Montreal, Montréal QC	Pending	-	
University Hospital, Western University, London ON	Pending	-	
Women's College Hospital, University of Toronto, Toronto ON	Uploaded	Sharing	

Currently Being Shared

Total Unique Variants
1194
959
195
145
126
108
103
100
54
49
34
29
23
22
21
19
13
11
10
7
6
6
3
3
2

Intragenic variants: 3877

- 3242 unique

• Genes: 25

• CNVs: 3339

Clinically associated diseases: 13

^{*} Note that the Unique Genes in the table do not include genes associated with the CNVS

Q: What are your plans for data sharing with COGR?

- A-I am interested in sharing all of my variants
- B- I am interested in sharing a subset of my variants
- C- I am not interested in sharing my variants but I want to view other labs' data
- D- I am not interested in sharing my variants but want the system to store my own variants

VariantWire

- Data-sharing network for clinical genetic testing labs to share variant and gene interpretations in real time
- Consortium supported by GeneInsight
- VariantWire will be presenting at the upcoming ACMG meeting

Participating Laboratories

Partners HealthCare Laboratory for Molecular Medicine ARUP Laboratories

Mount Sinai School of Medicine Genetic Testing Laboratory Mount Sinai Hospital in Toronto

Canadian Open Genetics Repository (consensus database) Children's Hospital of Eastern Ontario

Variant Classification	#
Pathogenic	1,946
Likely Pathogenic	1,137
Uncertain Significance	4,536
Likely Benign	12,053
Benign	4,657
Resistant or Responsive*	57
Total Variants	24,386

Sharing Variants

- Permission must be explicitly given to the COGR and GeneInsight team to start sharing
- There are ~25000 variants being shared through VariantWire. To access this a secondary permission is needed- please email us if interested
- COGR can assist your laboratory upload variant information to ClinVar, please contact us if you are interested

COGR Variant comparisons

- Variants Identified in Multiple Labs: 522
- Agreements: 264
- Disagreements: 91
- Shared variants not classified by one lab:
 167

Variant Disagreements

Path -Ben*	3
Path -Likely Ben	2
Likely Path - Ben	0
Likely Path - Likely Ben	0
Path -VUS	16
VUS - Ben	16
Likely Path - VUS	1
VUS - Likely Ben	15
Path -Likely Path	6
Likely Ben - Ben	32

^{*}These variants have been resolved

Examples of Variant Discrepancies

- Scenario 1
 - Lab A: Pathogenic
 - Lab B: Benign
- Scenario 2:
 - Lab A: VUS
 - Lab B: Pathogenic
- Scenario 3:
 - Lab A: Likely Benign
 - Lab B: Unclassified
 - Lab C: Pathogenic

Discrepancies can be dealt with in many ways:

- Group consensus discussion between all labs/participants
- Creation of a subcommittee
- Discrepancy reports to individual labs

Proposal: Monthly Discrepancies Reports

- 1. Monthly analysis of discrepant variants across sharing labs
- 2. Send discrepancy report to all sharing labs
- 3. Laboratories with discrepant variants to discuss with one another

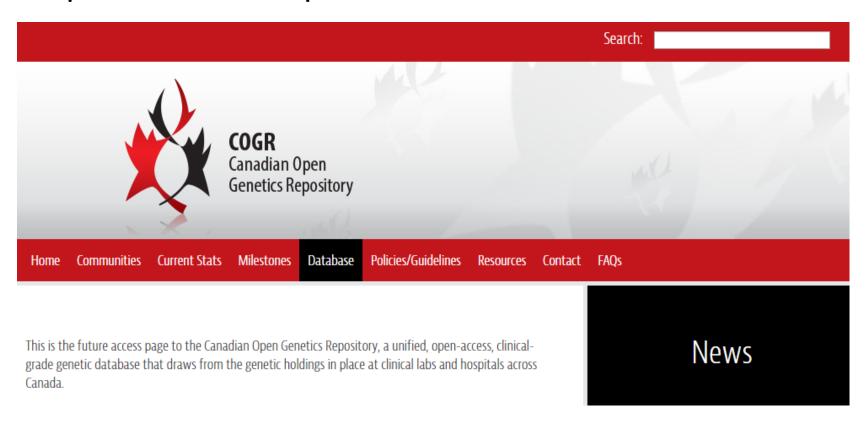
- The current proposal for resolving discrepancies
- Currently used by ClinVar and VariantWire successfully
- Alternative options:
 - Consensus group discussion
 - Subcommittee

Q: How should COGR resolve discrepant variant information?

- A- Discrepancy reports and direct contact only between labs that have discrepant variants classifications
- B- Have a subcommittee review discrepant variants
- C- Have a group discussion between all COGR participants about discrepant variants
- D- Other: ____

Website and public access

Similar to other initiatives like ClinVar COGR aims to post consensus level interpretations on a public website



Q: Please provide suggestions for criteria needed for a consensus variant classification agreement

Open Ended

Issues with Conesus Level Interpretations

- If one lab encounters a variant- is that considered a consensus?
 - What about 2 labs?
 - What is the threshold number of labs?
- Is there a need for a consensus committee?
 - Would that take too much time and resources?
 - Would we need different people to handle variants related to different diseases?
- If two labs have interpretations should evidence be combined?
 - What will be shown on the consensus database?

Would you be interested in attending regularly scheduled web meetings such as this one for COGR updates?

A- Yes-Every 1 or 2 months

B- Yes- Quarterly

C- Yes-Every 6-12 months

D- I am not interested at this time

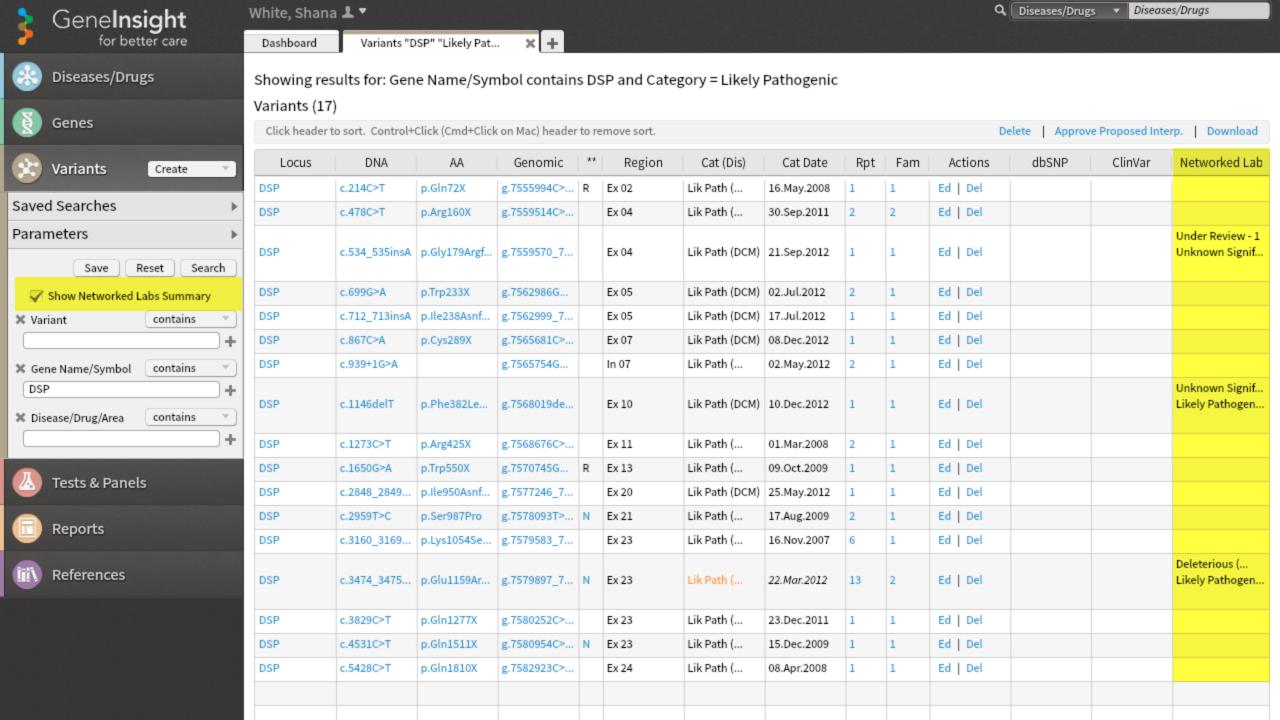
Q: What are the biggest barriers to your participation in the COGR project and how can we help?

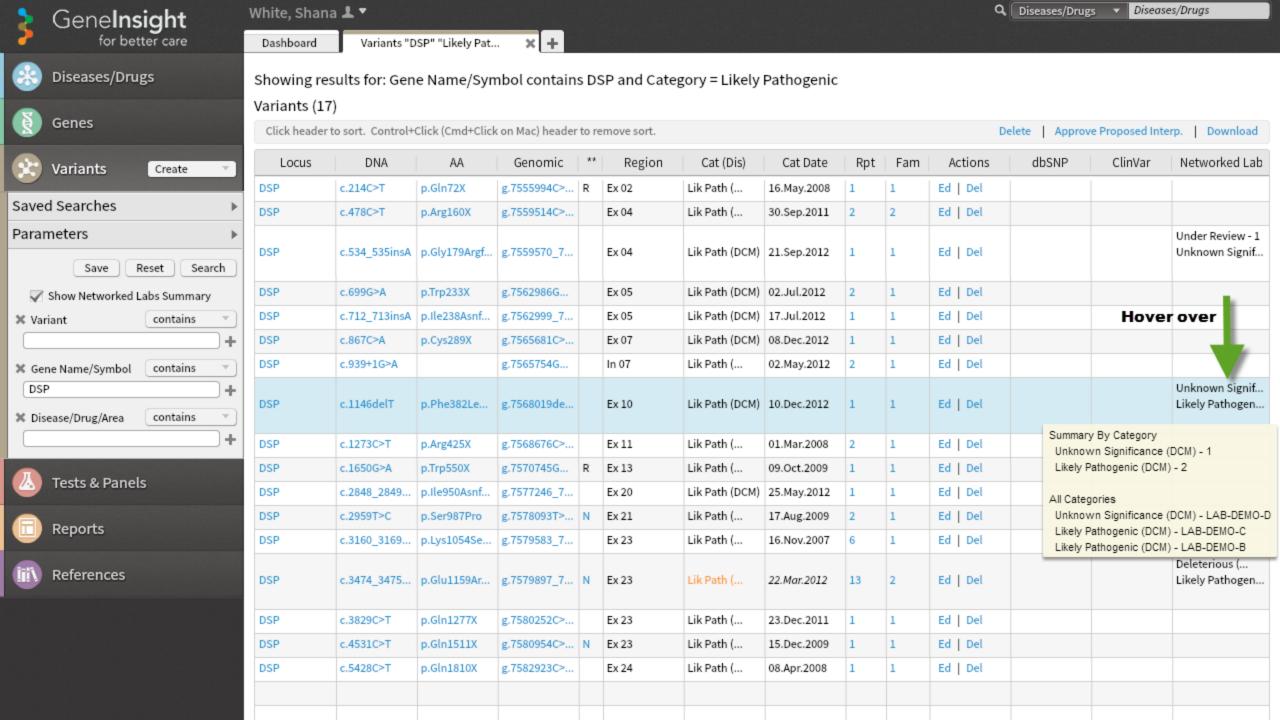
Open Ended

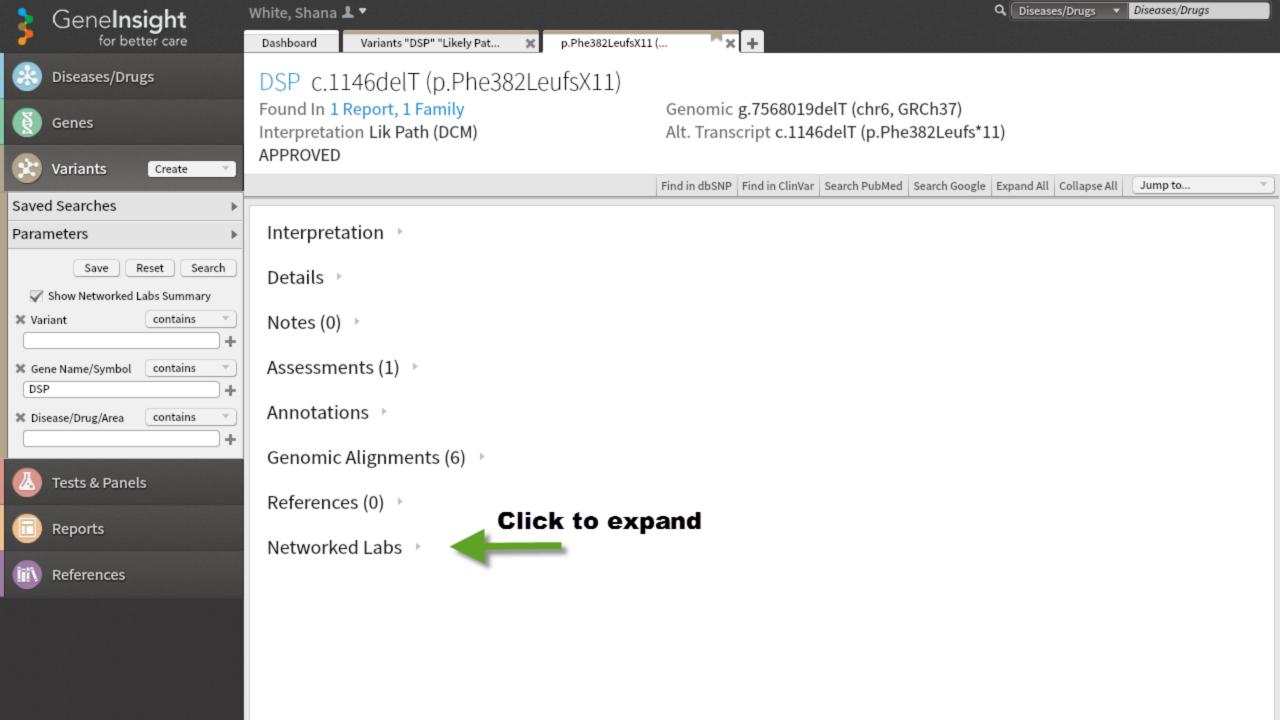
Recap using GeneInsight

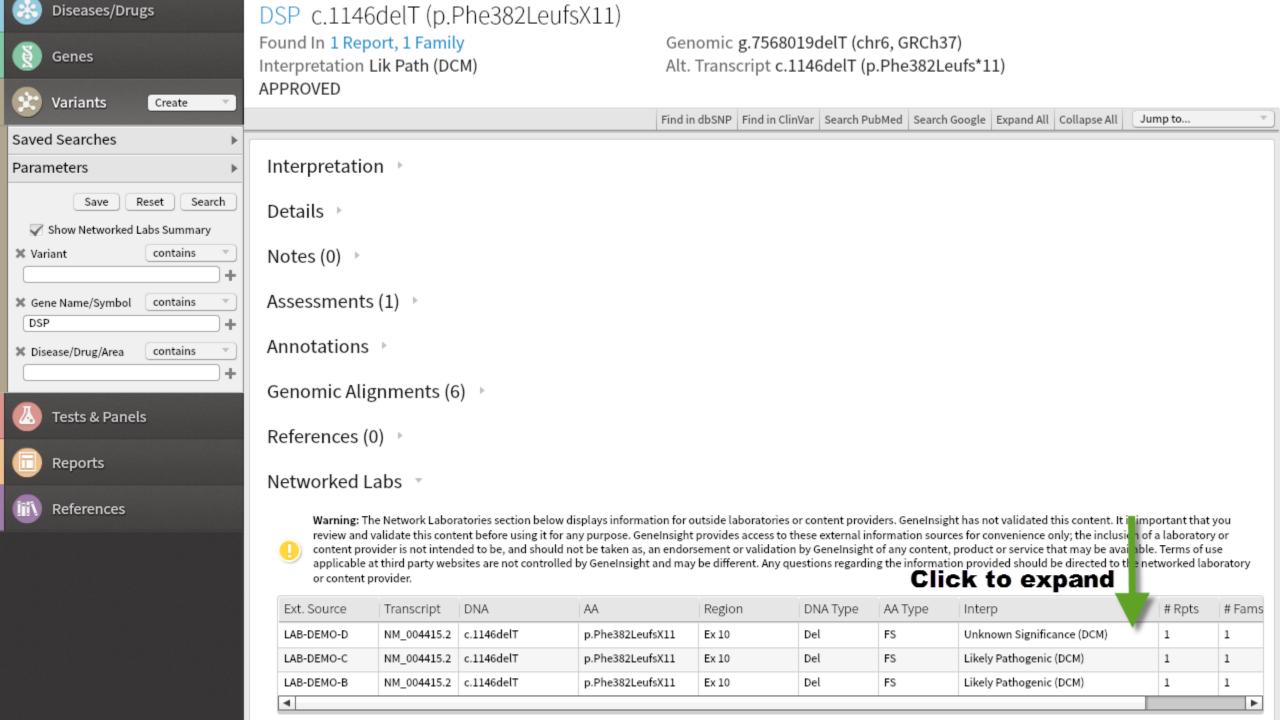
- Searching for variants and shared variant information
- Viewing detailed shared variant information
- How to approve variants one by one and in bulk
- Upload Variants (not included)
- Saving (not included)

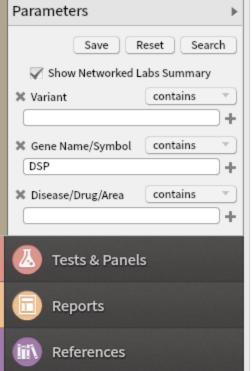
Search for variants and view shared variant information











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LAB-DEMO-B Information Close

ALIASES REPORT ALLELE NAME, DNA CHANGE, AND AMINO ACID CHANGE

p.Phe382fs

REPORTS # FAMILIES

SPLICING IMPACT SOURCE

Predicted unlikely impact

Current Interpretation | Import

CONTENT APPROVED 10.Dec.2012 06:05 PM by Matthew Lebo

REVISION APPROVED 19.Mar.2013 03:32 PM by Geneticist One

REASON(S) FOR UPDATE

New Evidence

CATEGORY DISEASES/DRUGS PHENOTYPE

Likely Pathogenic DCM

EXCLUDE FROM REPORTS INHERITANCE SCORE

No Autosomal dominant

EVIDENCE

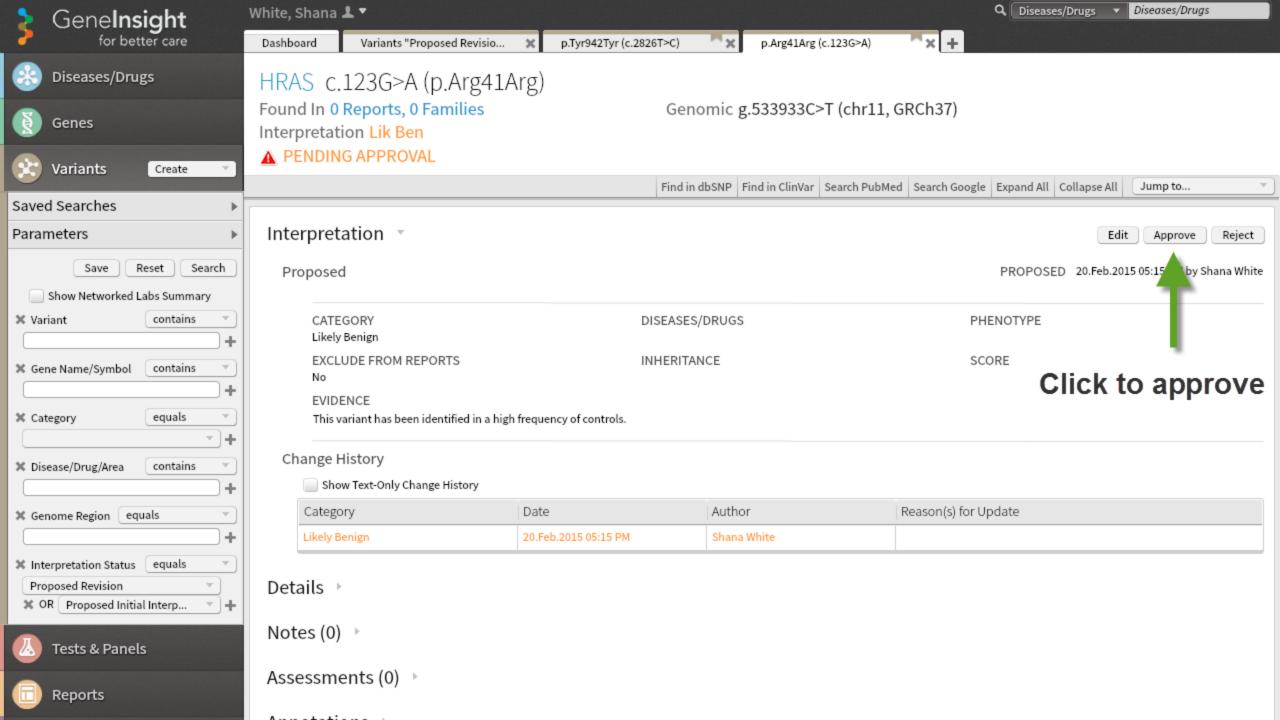
The Phe382fs variant in DSP has not been reported in the literature nor previously identified by our laboratory. This frameshift variant is predicted to alter the protein's amino acid sequence beginning at position 382 and lead to a premature termination codon 11 amino acids downstream. This alteration is then predicted to lead to a truncated or absent protein. Frameshift and nonsense variants in DSP are common in patients with ARVC (http://arvcdatabase.info/), but recent evidence supports that they can also cause DCM (Elliott 2010, Garcia-Pavia 2011). In summary, this variant is likely to be pathogenic, though additional studies are required to fully establish its clinical significance.

Ext. Source	Transcript	DNA	AA	Region	DNA Type	AA Type	Interp	# Rpts	# Fai
LAB-DEMO-D	NM_004415.2	c.1146delT	p.Phe382LeufsX11	Ex 10	Del	FS	Unknown Significance (DCM)	1	1
LAB-DEMO-C	NM_004415.2	c.1146delT	p.Phe382LeufsX11	Ex 10	Del	FS	Likely Pathogenic (DCM)	1	1
LAB-DEMO-B	NM_004415.2	c.1146delT	p.Phe382LeufsX11	Ex 10	Del	FS	Likely Pathogenic (DCM)	1	1
4									

Approving variant interpretations

• Variant interpretations must be approved for their interpretation to be visible to other labs

Single variant approval



Bulk approval

