CSC - 895

User Instruction Manual

**Seamless Integration of Deep Learning
For Image Classification**

San Francisco State University
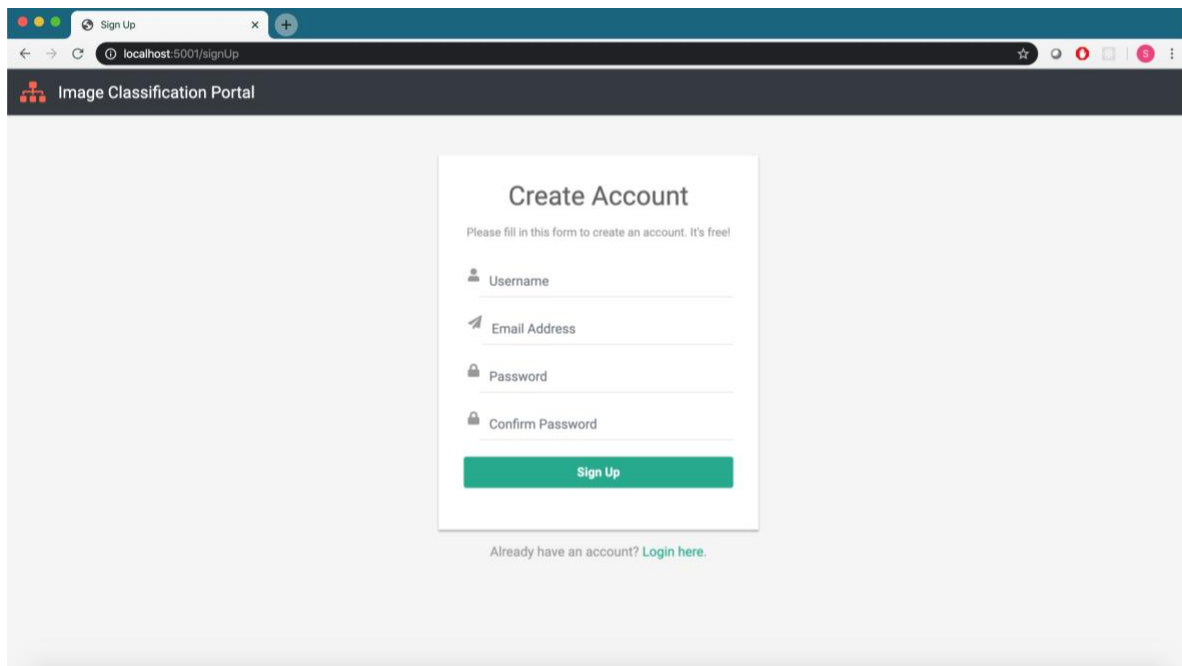
By:

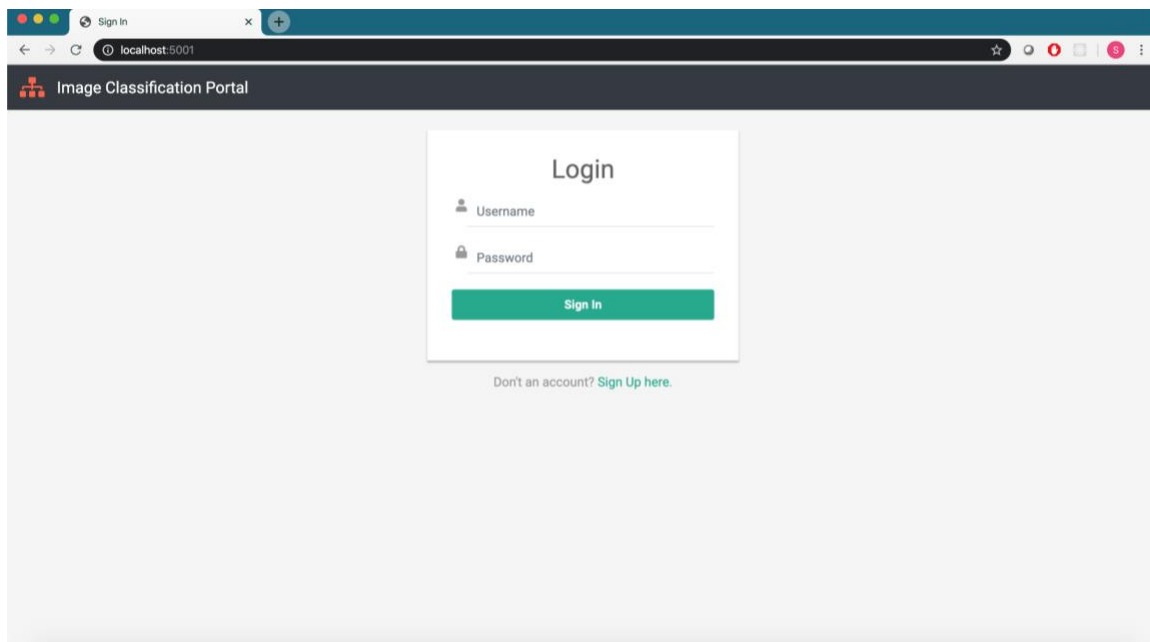**Sushil Plassar**

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USER INSTRUCTION MANUAL

WEBSITE SNAPSHOTS

- Sign-up Page – For the first time, a user has to create an account to login to the website.

- Login page – User can login with their credentials to enter the website

<u>Steps for normal user/not an admin</u>

- Default landing page after login where user has to choose between 'training a model' or 'making a prediction':
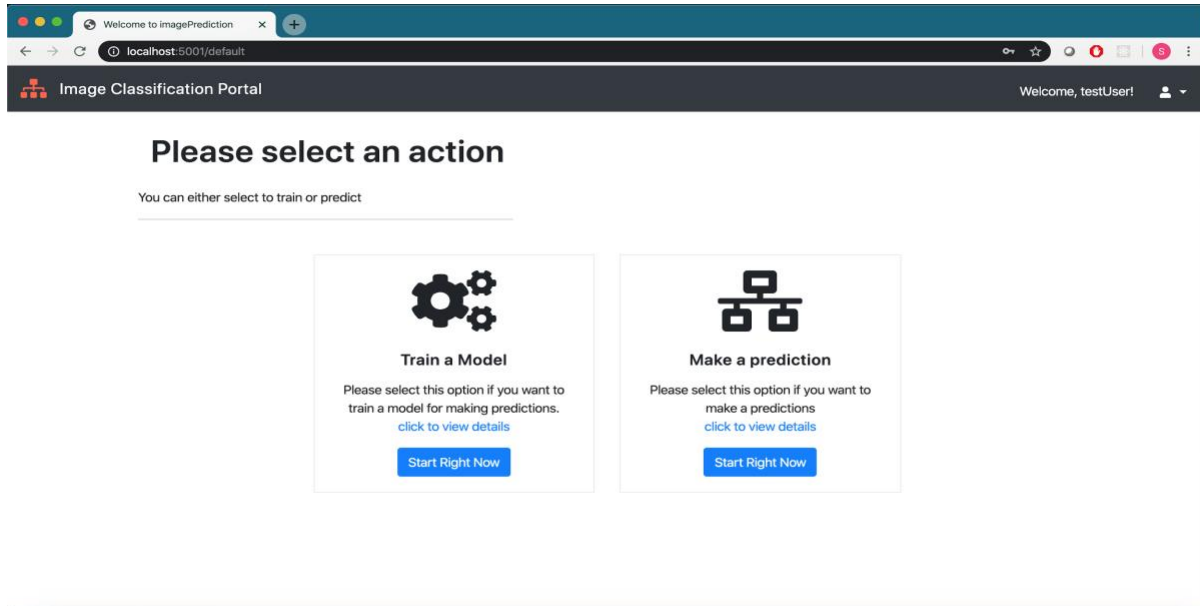
- Usually flow starts with selecting 'train a model' first, followed by clicking on 'make a prediction'. On click of make a prediction, the test data summary page gets displayed. It shows the summary of model training performed by the user in a tabular form:
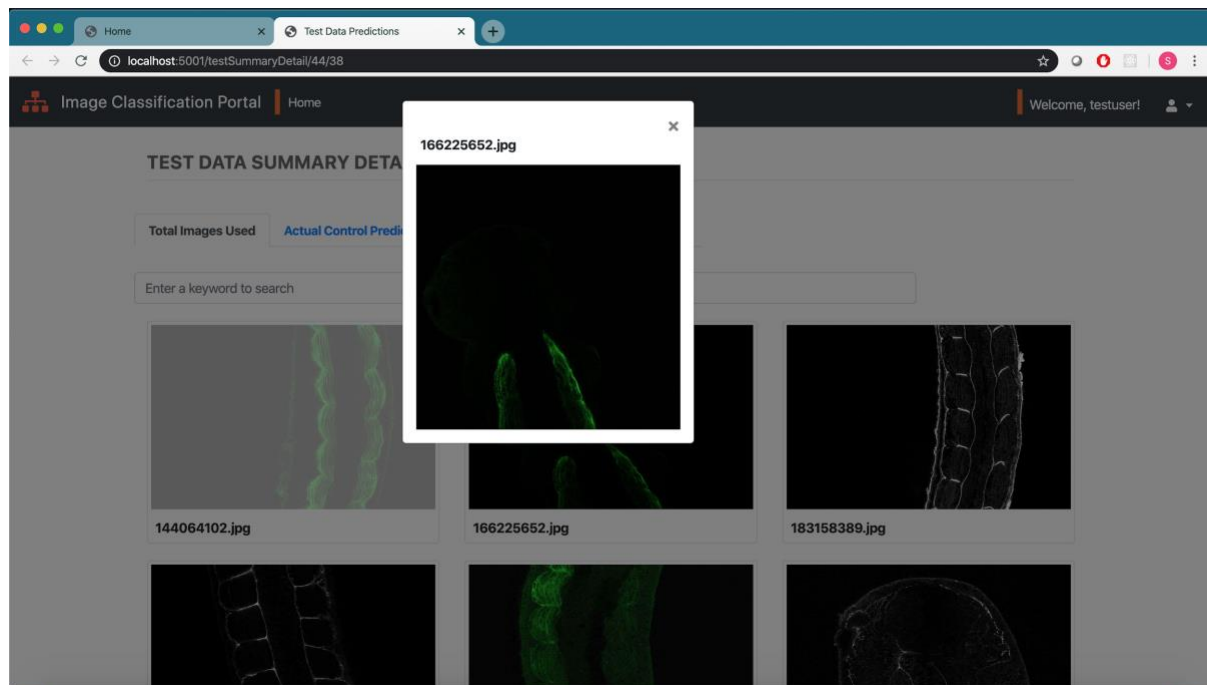
- Click on an experiment name in test data summary page to view details of all the images used under that experiment:
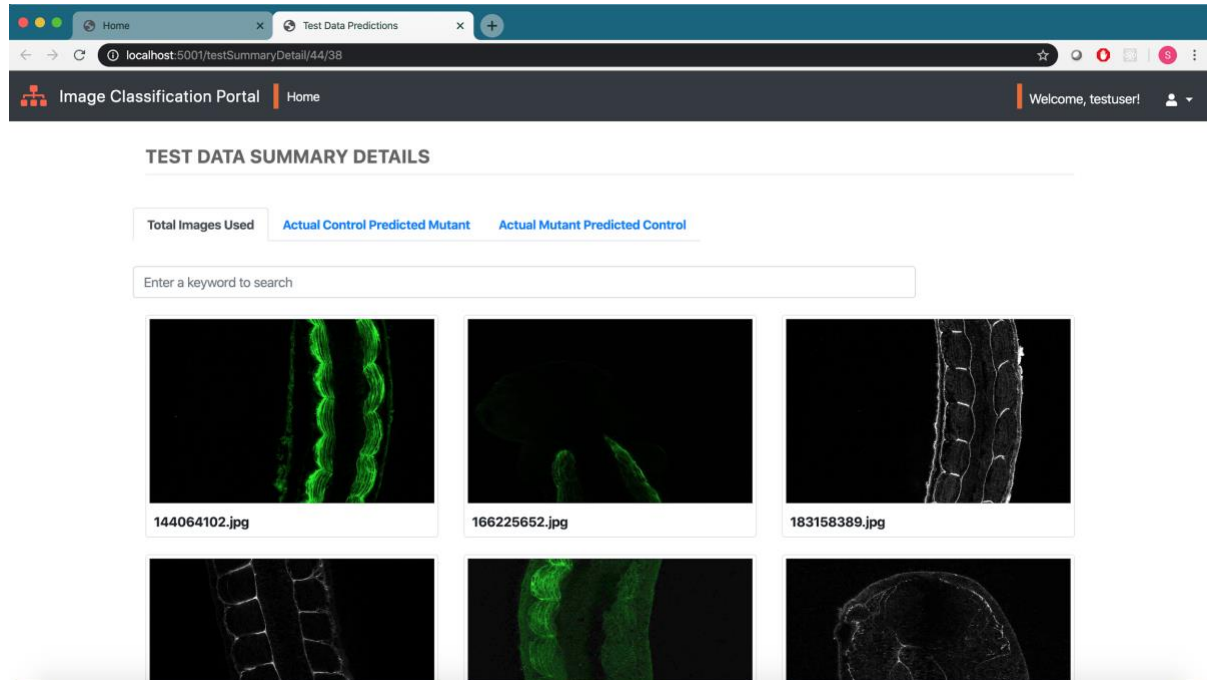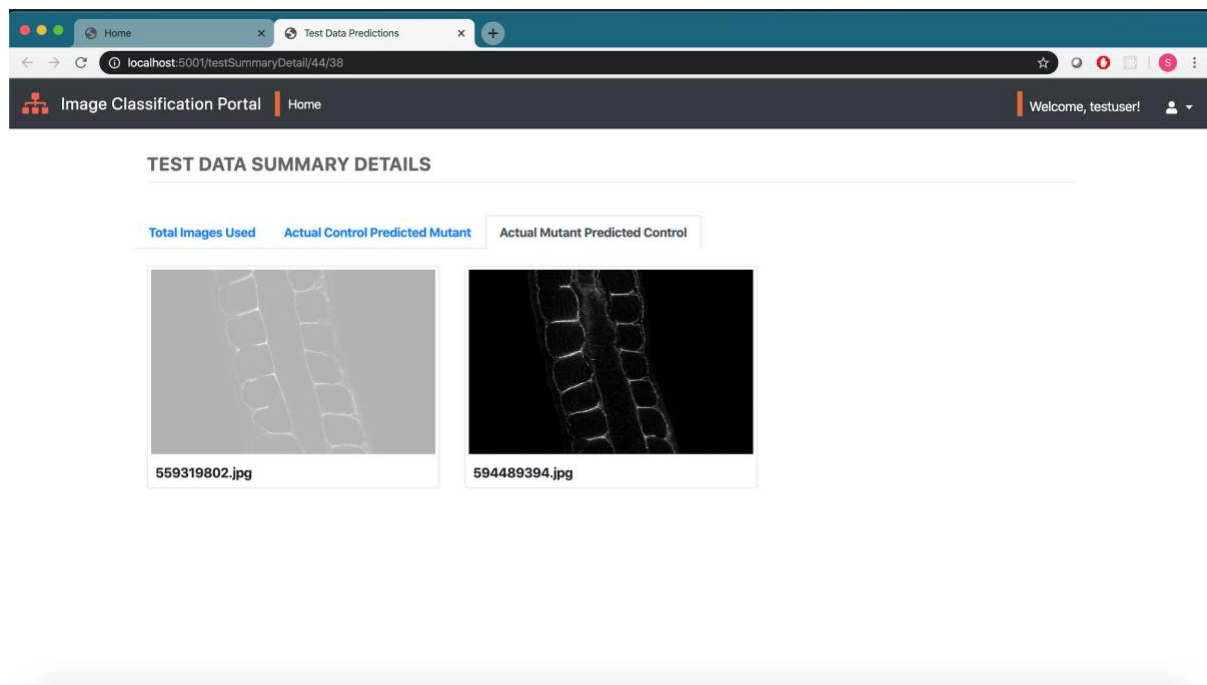

- Click here on any image to view enlarged image:

- The next tab Actual Control Predicted Mutant helps user to track incorrect 'Control' predictions. Click here on any image to view zoomed image
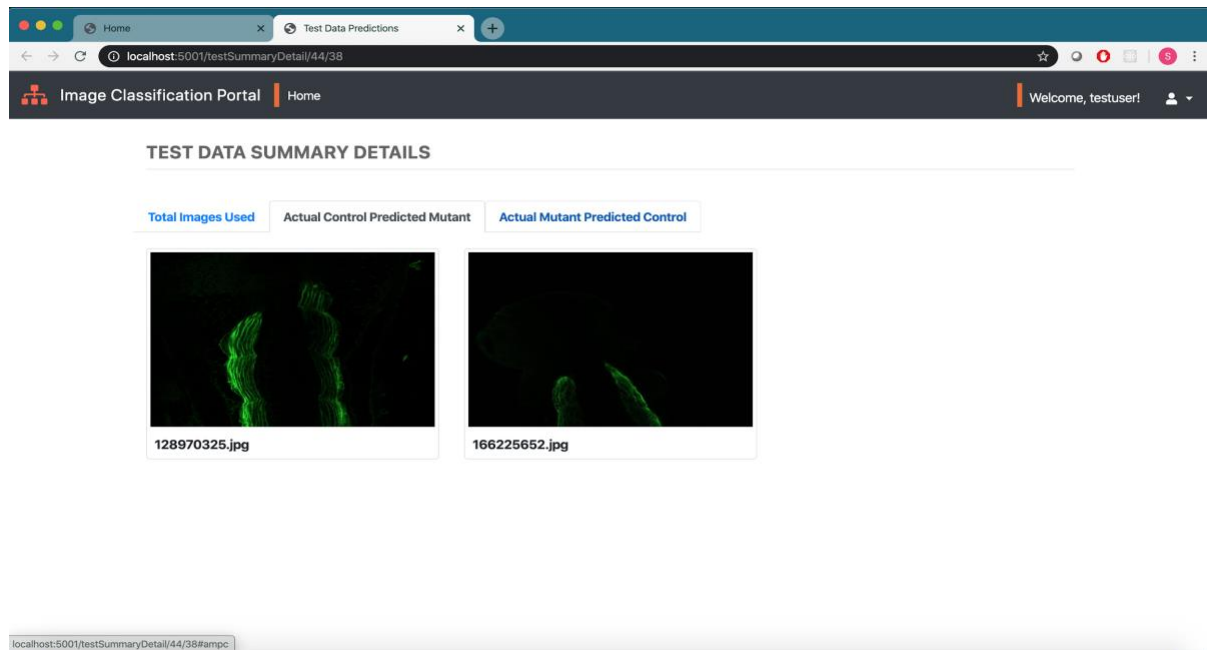
- The next tab Actual Mutant predicted Control helps user to track incorrect 'Mutant' predictions. Click here on any image to view enlarged image

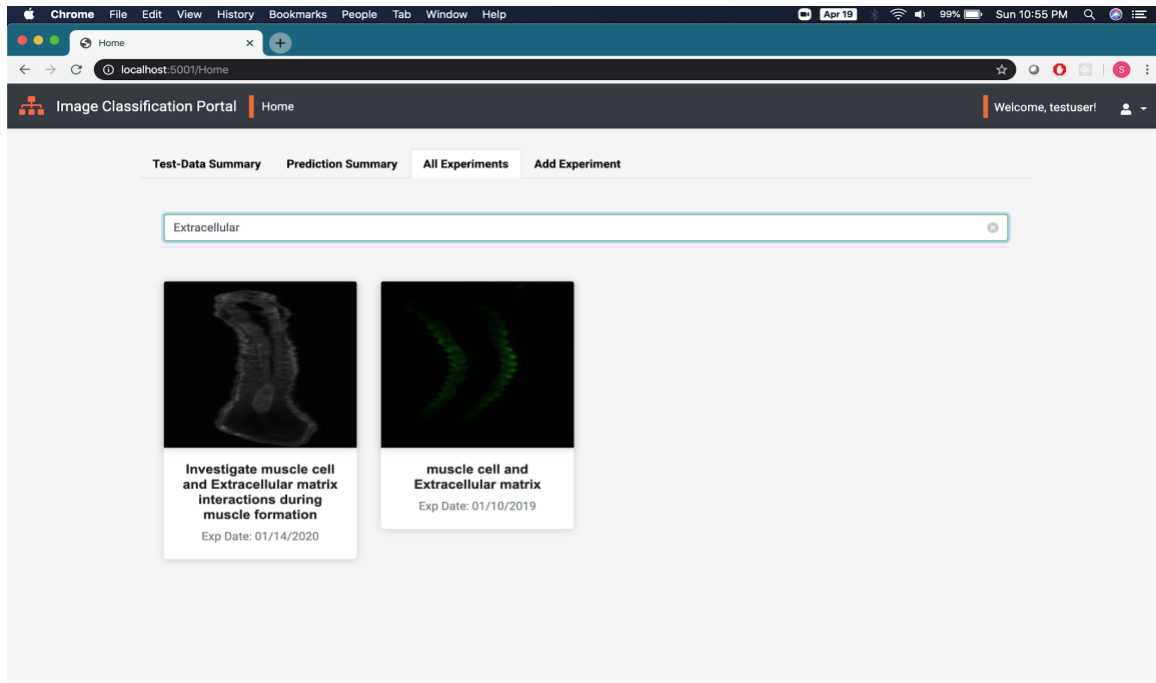- To create an experiment, click on 'Home' icon in the header bar followed by a click on 'Add New Experiment':

- After adding an experiment, user can again click on 'Home' in the header and view all the experiments created by him/her by clicking on All Experiments tab:
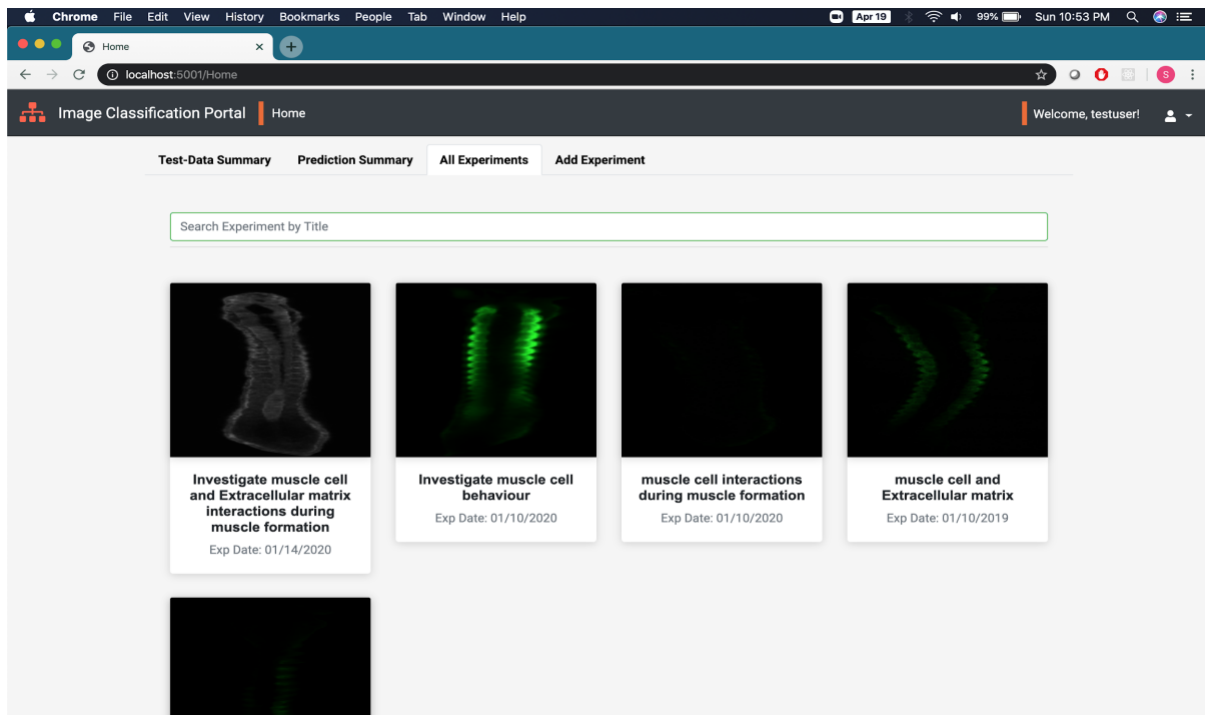
- All experiment page allows user to 'Search an experiment' based on any keyword:

- By clicking on an experiment of interest, user can view details for that particular experiment. Also, after adding an experiment, user is automatically redirected to 'View an experiment' page:
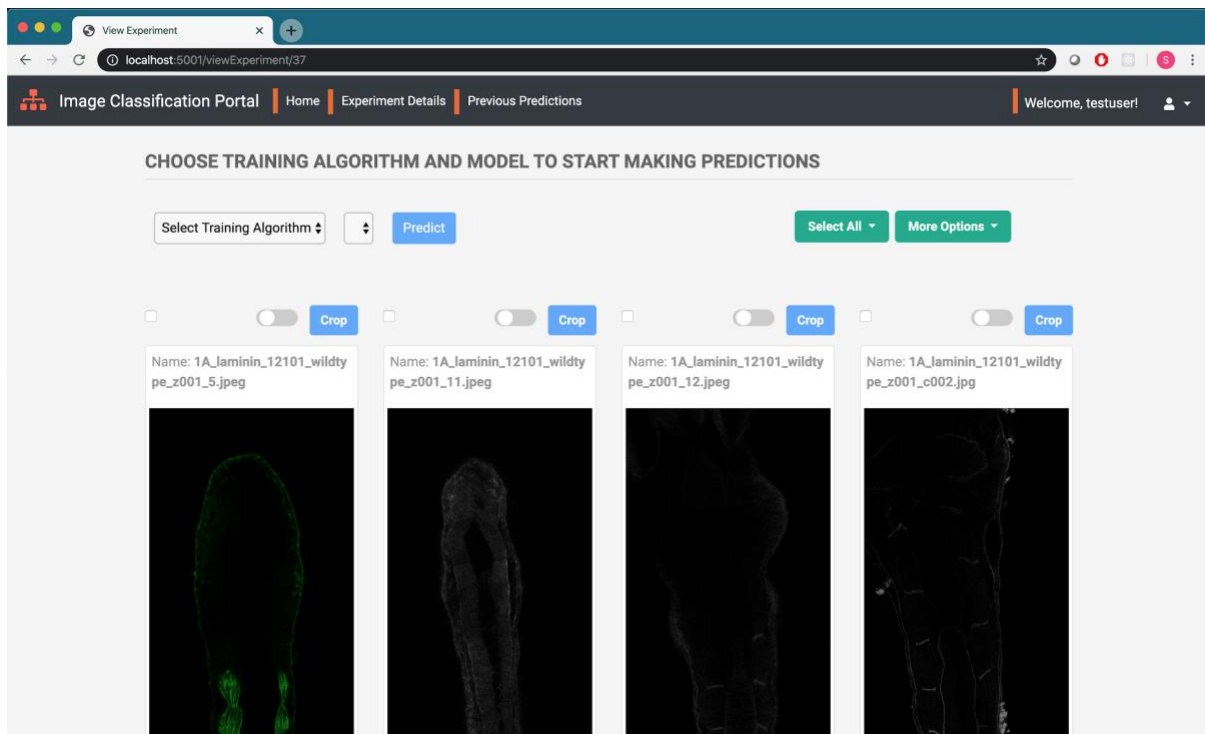
- To view the experiment meta-data, click on 'Experiment Details' from header bar:
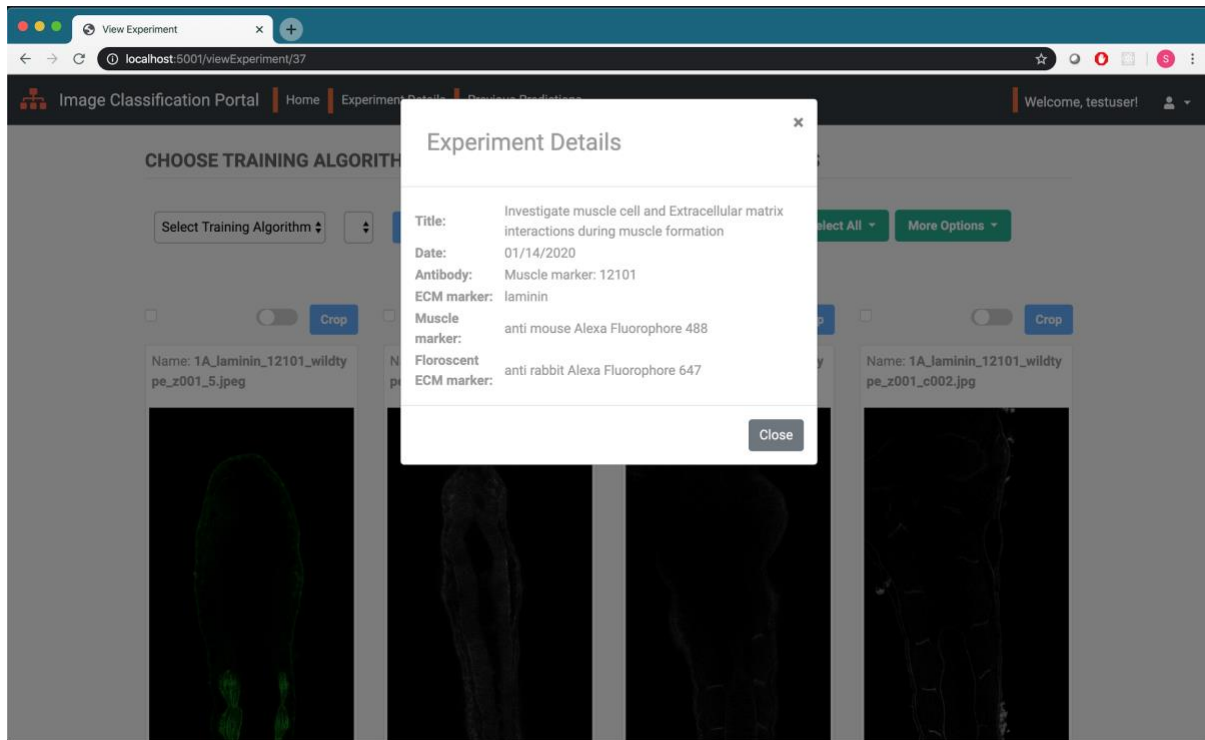
- 'View Experiment' - Select/Unselect All Images:
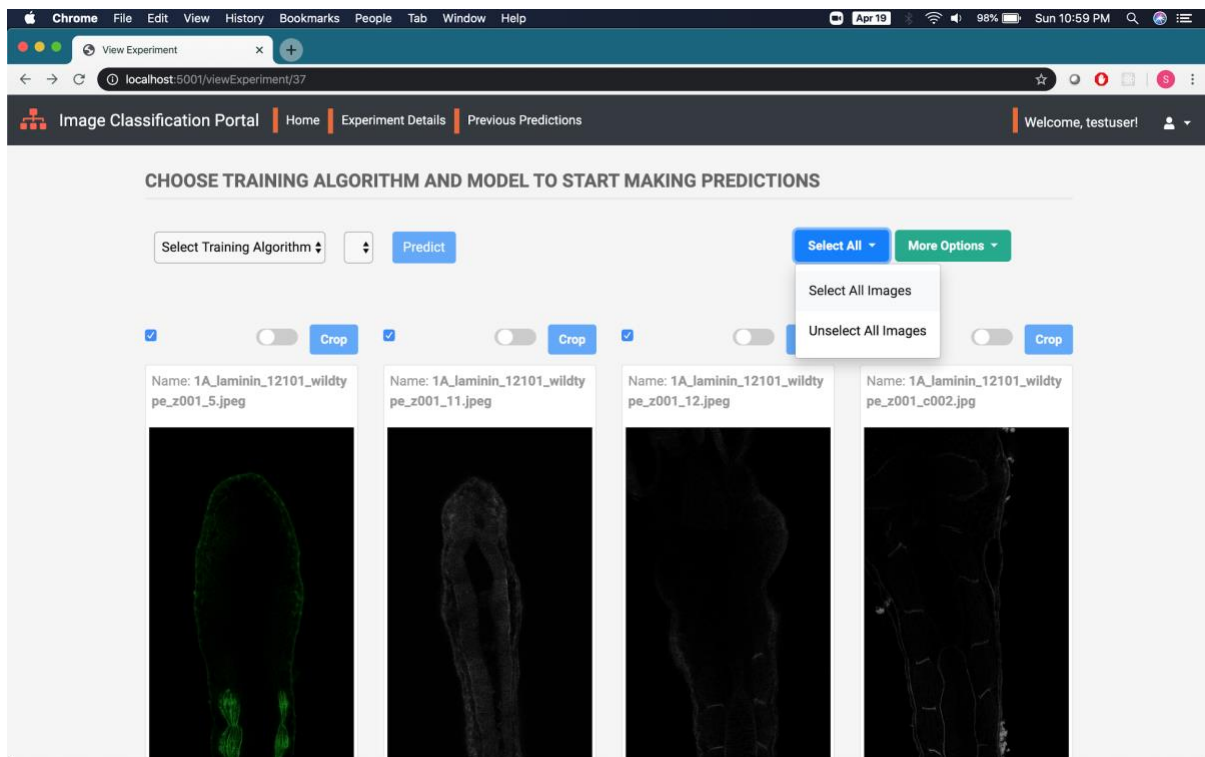
- 'View Experiment' - More options - Add images, delete images, Enable and disable selected crop:
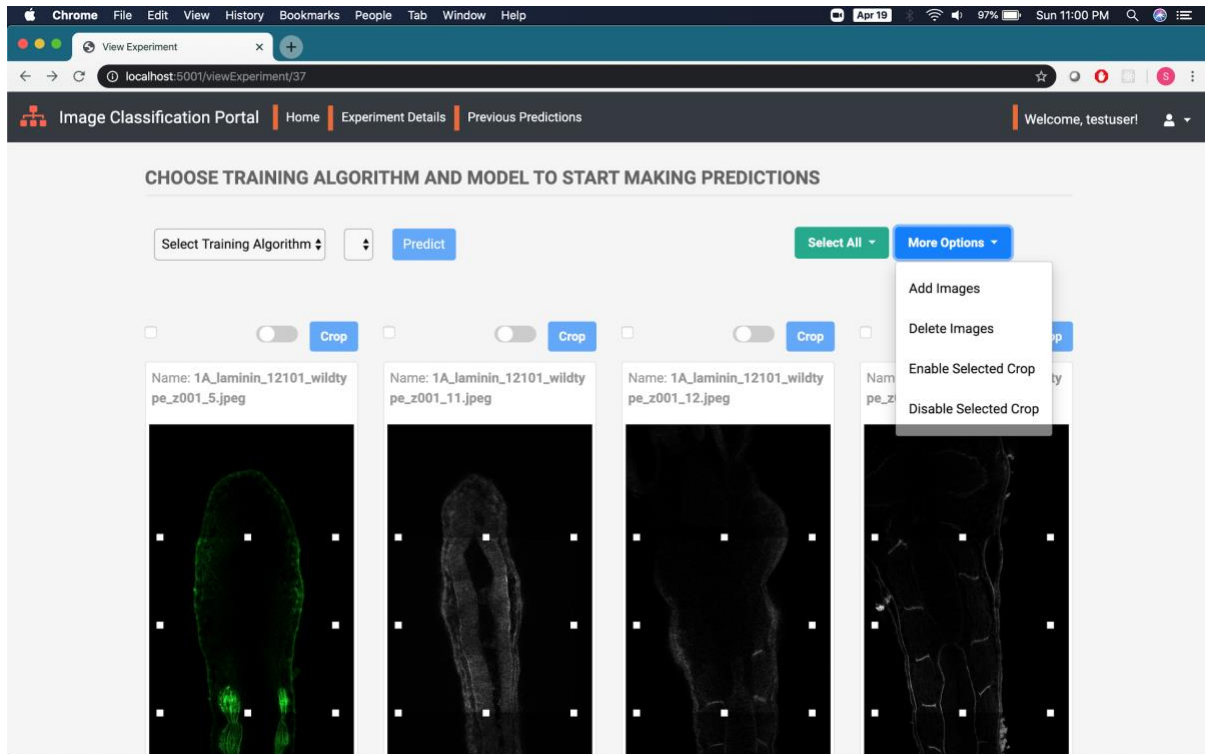
- 'View Experiment' - Select training algorithm:
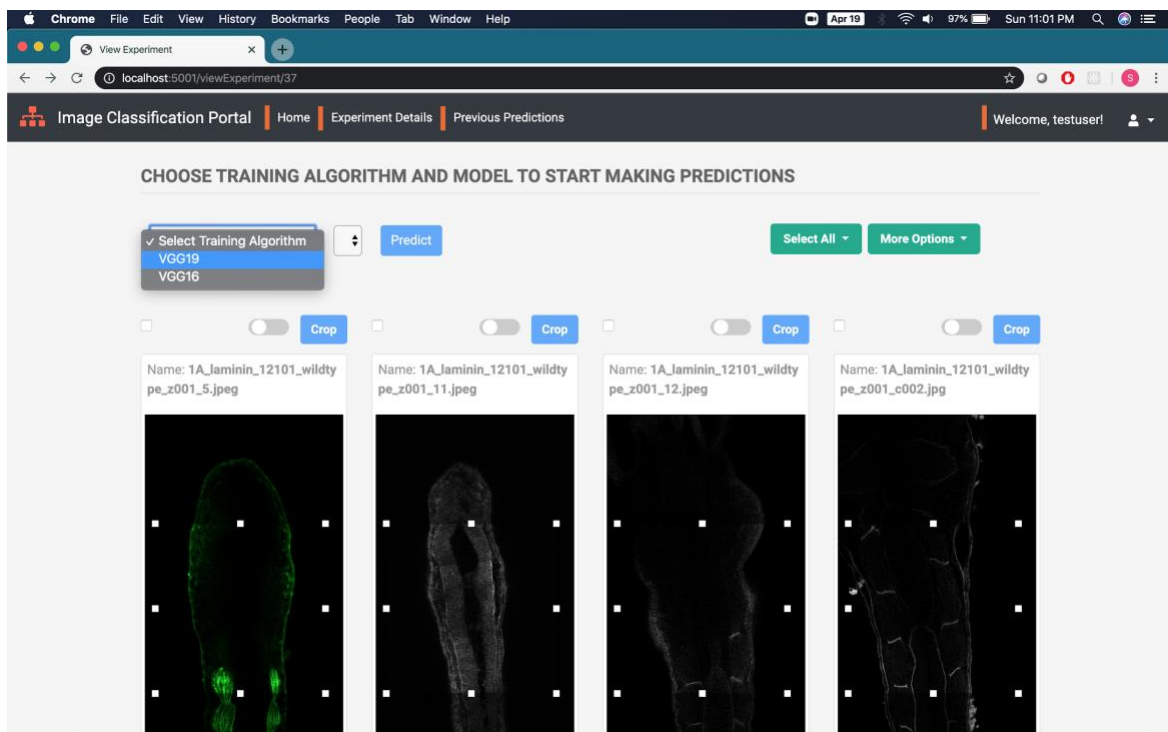
- 'View Experiment' - Select Model, model with *** shows users' trained model saved as favorite if any:
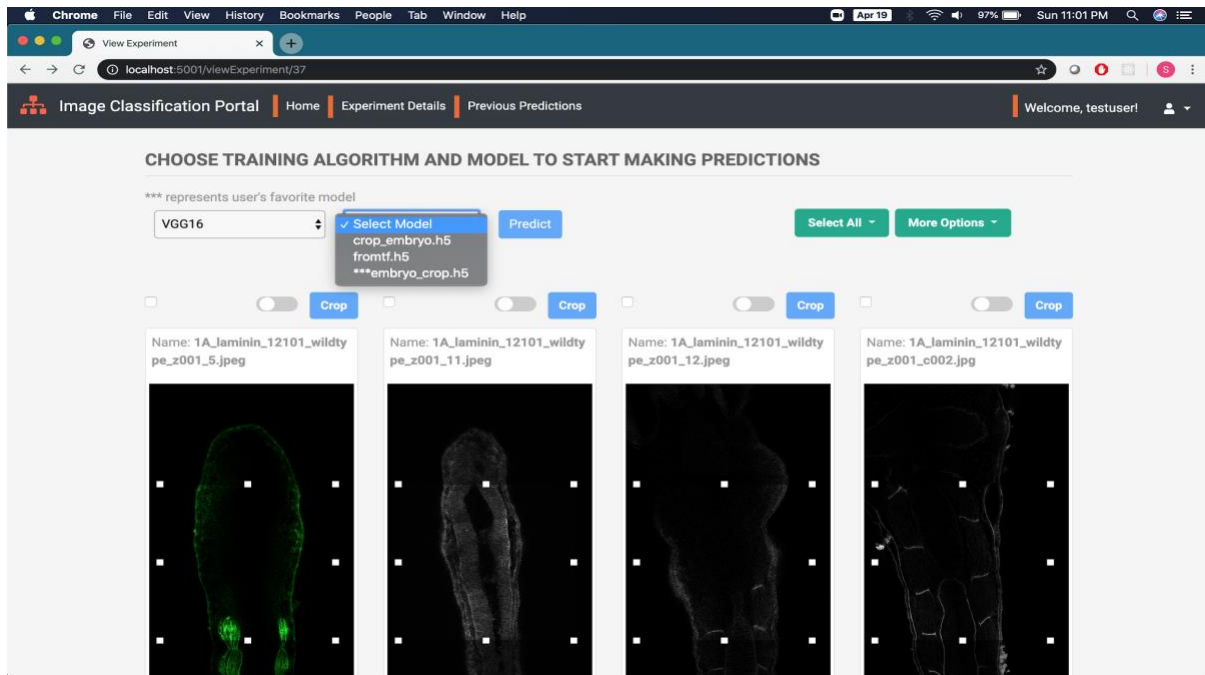
- 'View Experiment' – Once both training algorithm and model selection is done, 'Predict'- button is enabled for user:
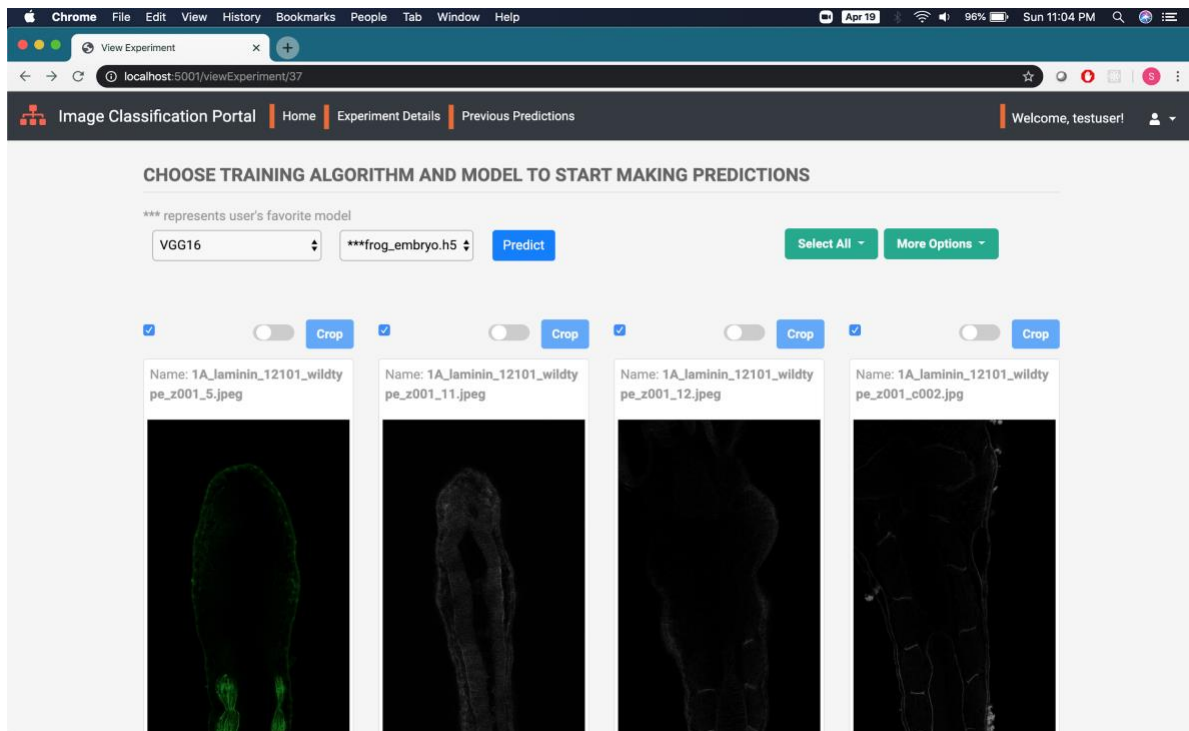
- 'View Experiment' – User screen once the user sends images for prediction

Processing
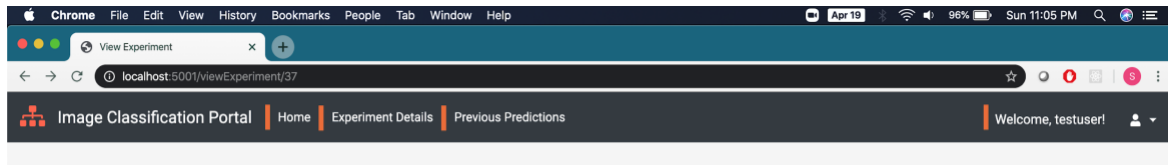
- Once the model has made the predictions for selected images, user is redirected to 'View Prediction Results' page:

- 'View Prediction Results' - Users can approve or disapprove results based on predictions made by the model by selecting yes/no. For the images user has validated the results the color of the image will change to beige to indicate the approval has been done for the prediction
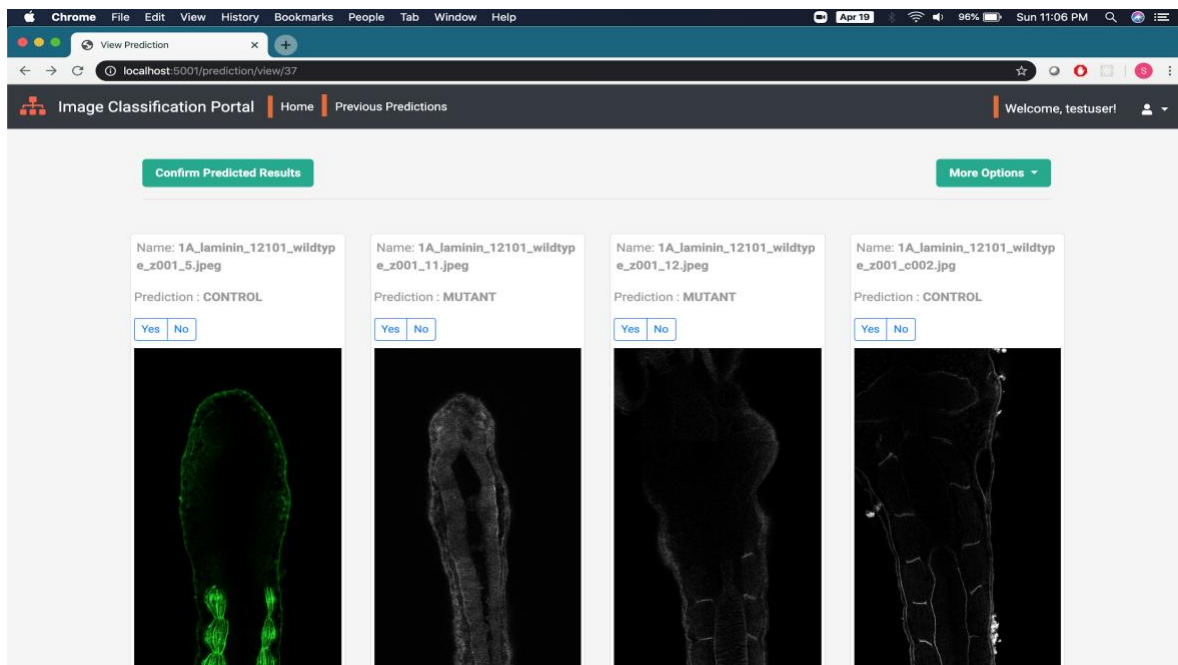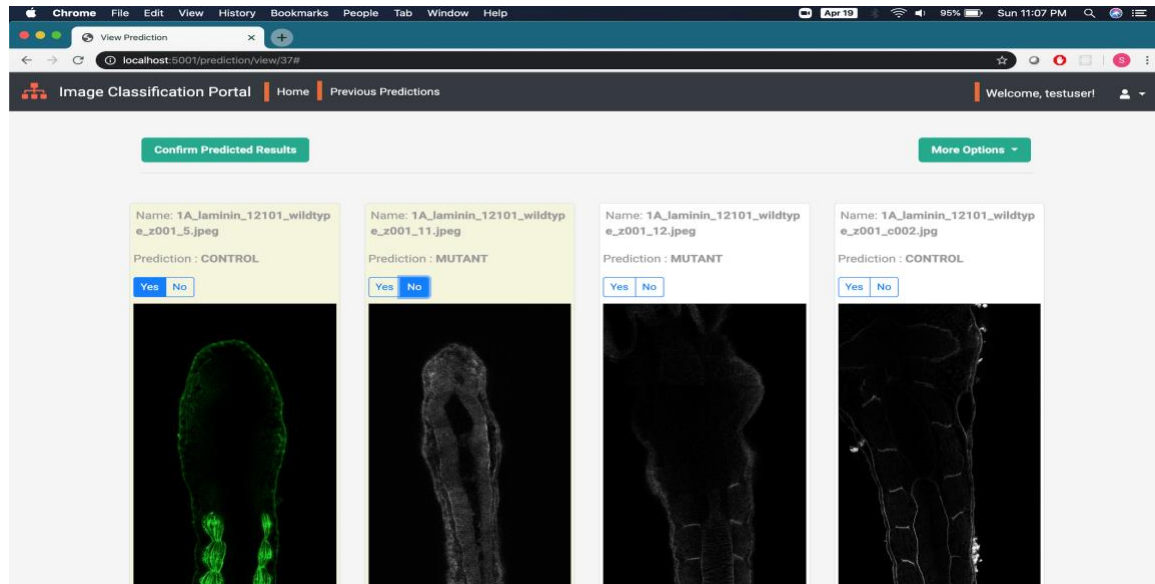

- 'View Prediction Results' - Users can approve/disapprove all the results at once by selecting choices under More Options. Note that the toggle bar moves on the choice made and color gets changed to indicate that the choice has been made for the images.
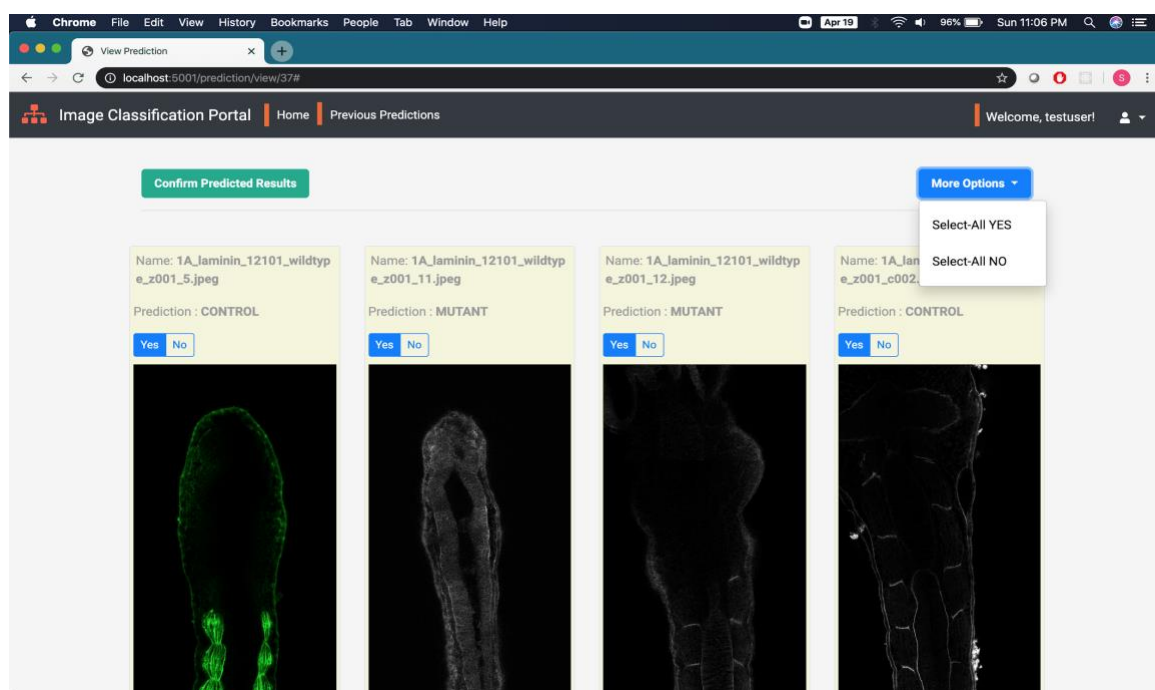
- 'View Prediction Results' - Once the user makes the selection, he/she has to click on the 'Confirm predicted results' button to validate the results.
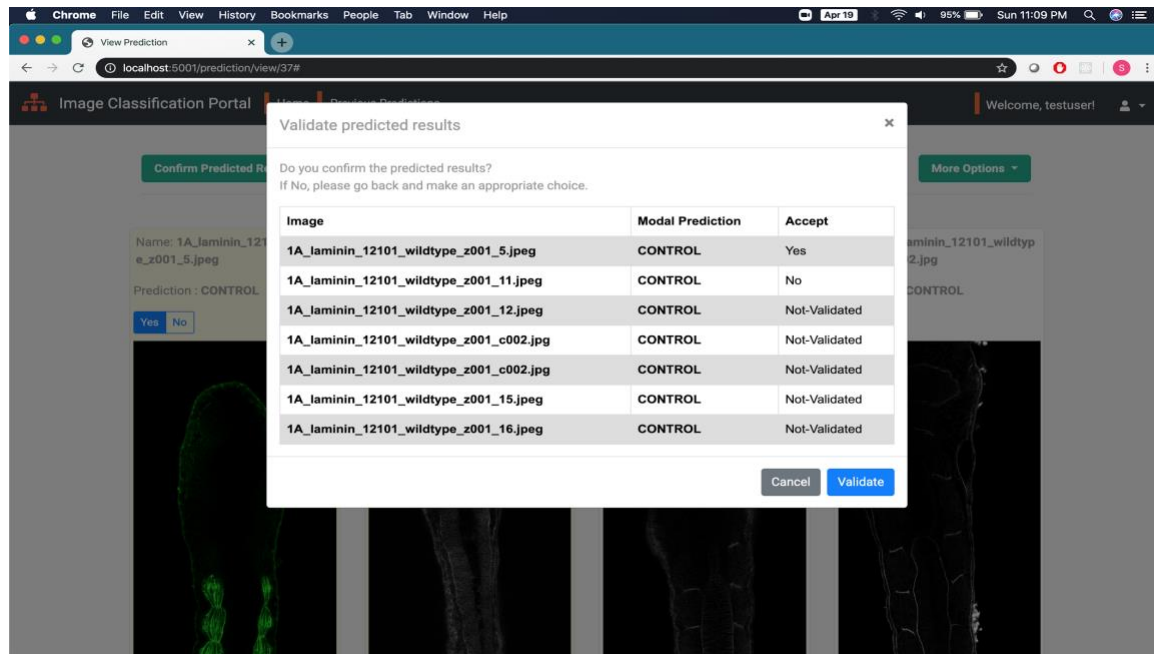

It will again ask for confirmation from the user and showcase the summary of images, the prediction made and user's approval. The images for which the user has made a choice for approval will get updated. For those no choice has been made will remain as 'not-validated' and will be shown under 'predictions to be validated' tab on previous predictions page:

- User is redirected to the 'Previous Predictions' page once the validation of results from the model is done. It holds all the current and previous predictions made for that particular experiment from the user.
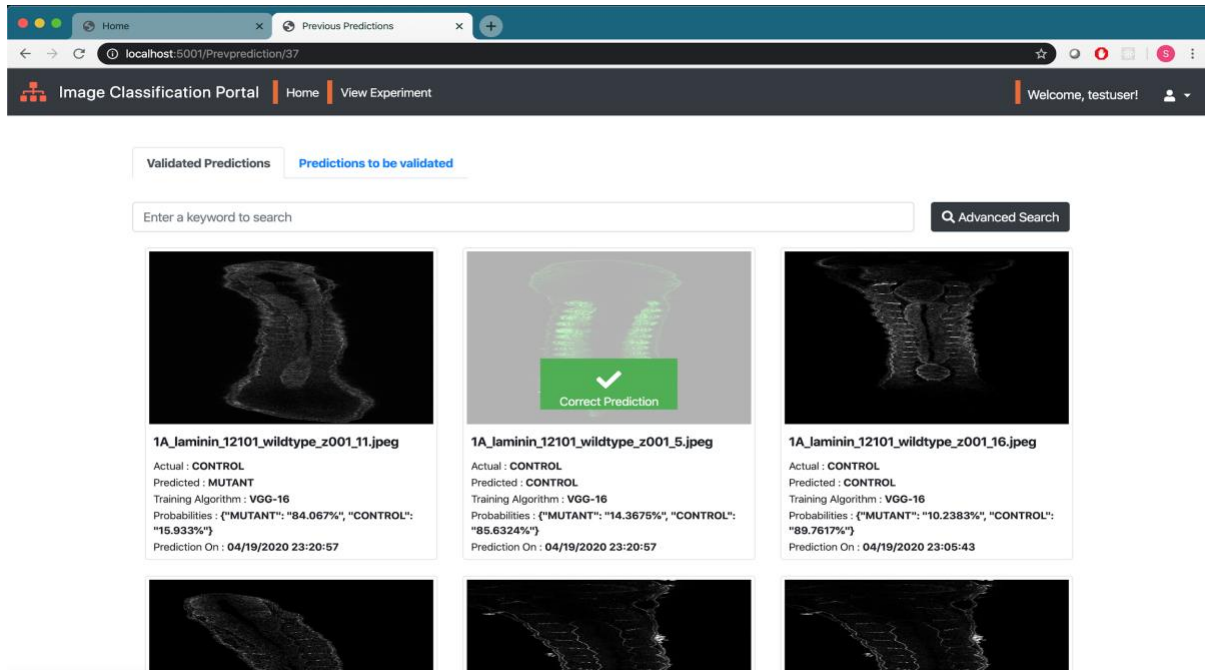
Hovering the mouse on any image thumbnail shows if the prediction is a correct or wrong prediction. In addition, the user can also view details like image name, actual image type vs predicted image type, training algorithm used for prediction, the prediction probabilities from the model and the timestamp of prediction made from the model.

- 'Previous Predictions' - Further, clicking on any image thumbnail will open the enlarged view of that image to enable the user to further investigate any specific detail for that image.
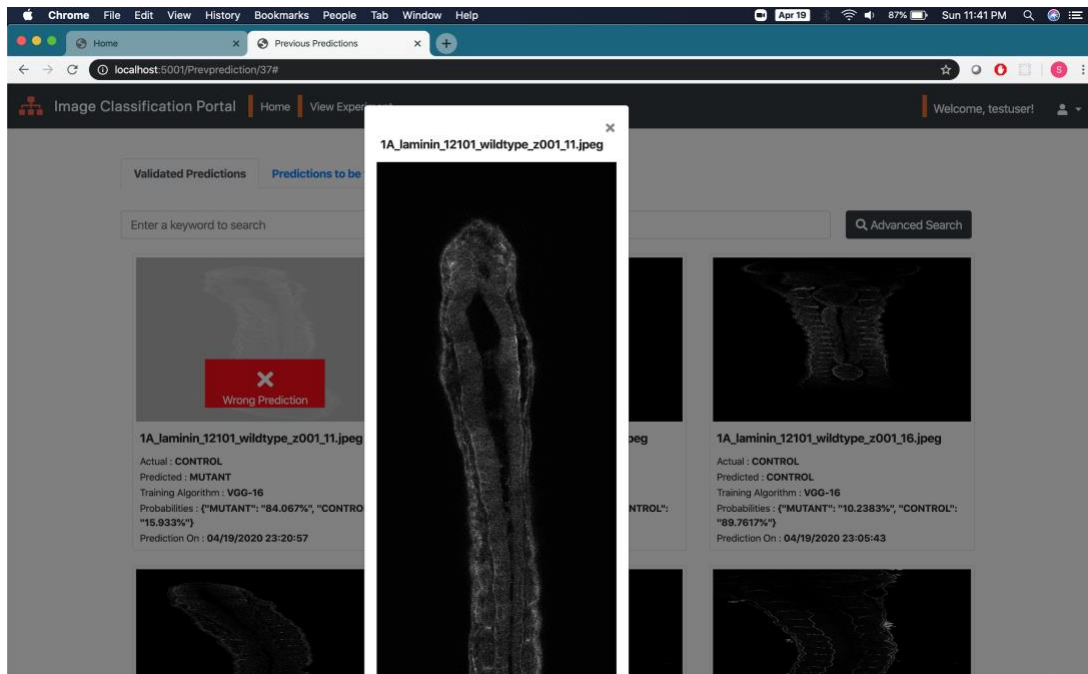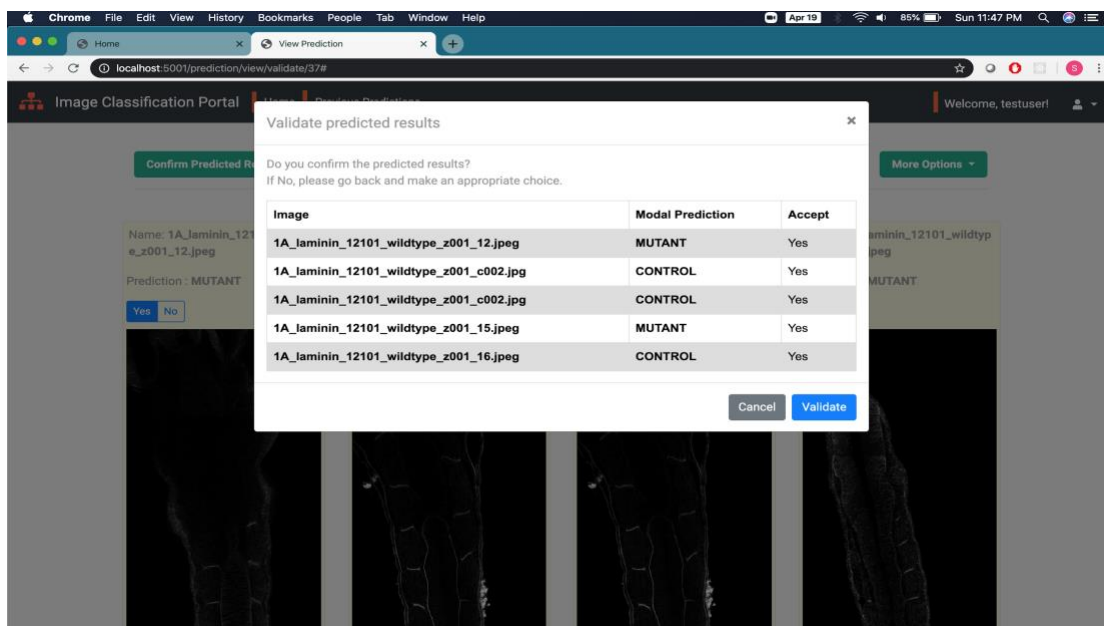
- 'Previous Predictions' – Additionally, the user can search the validated prediction results based on any keyword or using advanced search options to segregate the predictions made on a particular date or on a particular month during the year.
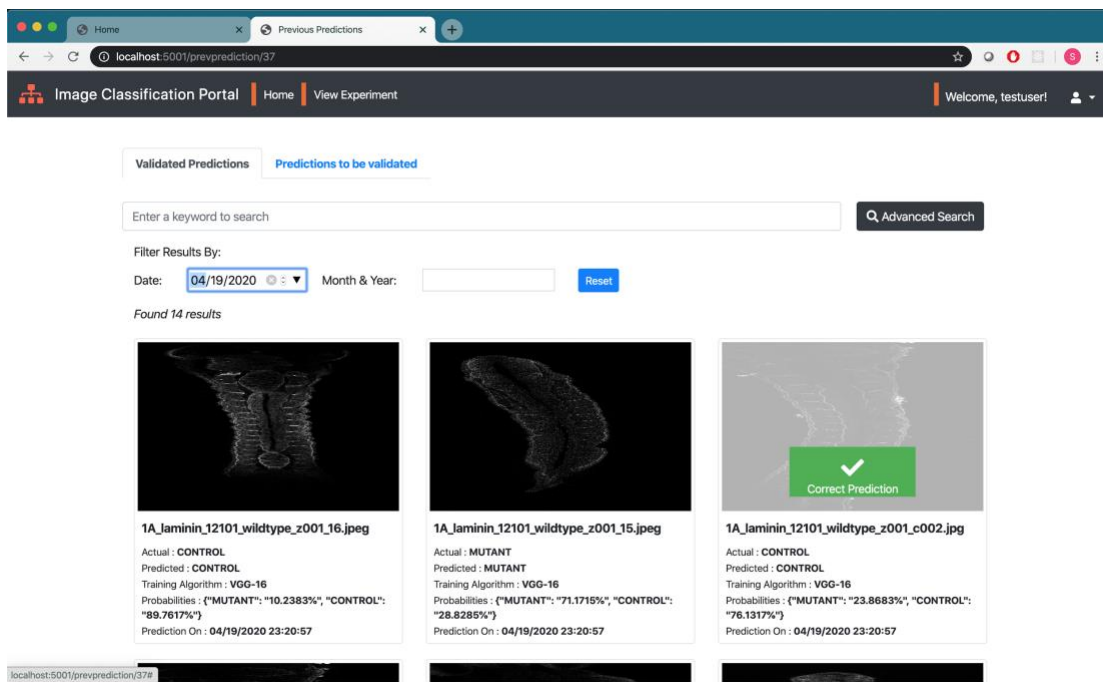
- The images whose prediction result from the model is yet to be validated by the user are shown under the 'predictions to be validated' tab on the same page. As these images are yet to be validated by the user, the actual user validated result is not displayed under additional details:
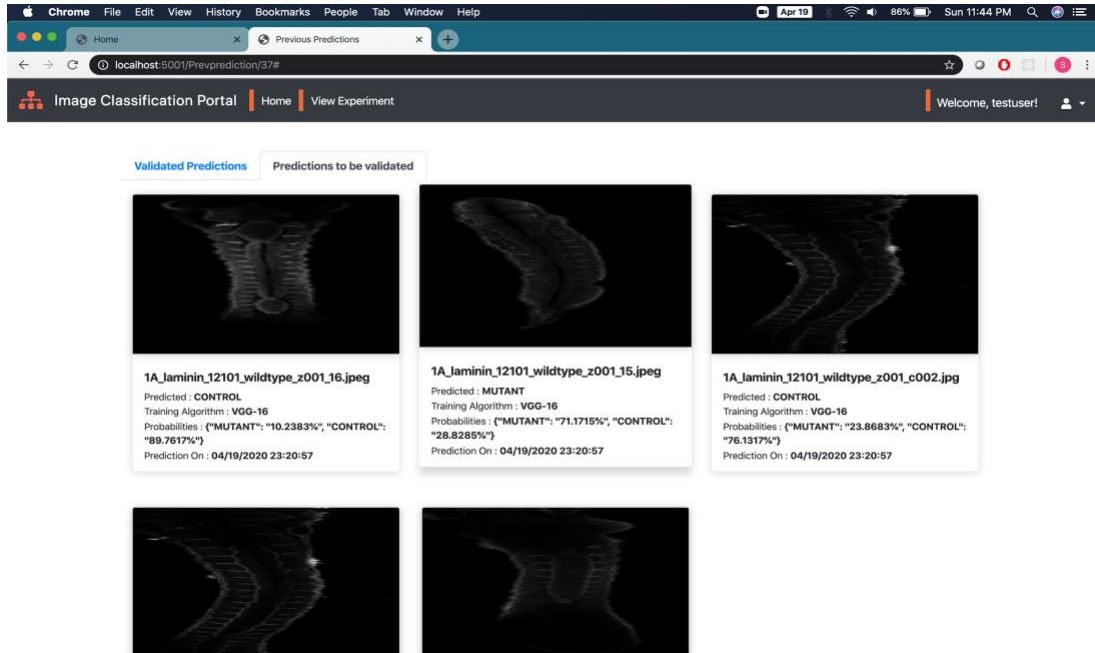

- Once the user clicks on any of the images under 'predictions to be validated' tab, they are taken to the 'view prediction result' page where they are given options to validate these pending results at a later point of time.
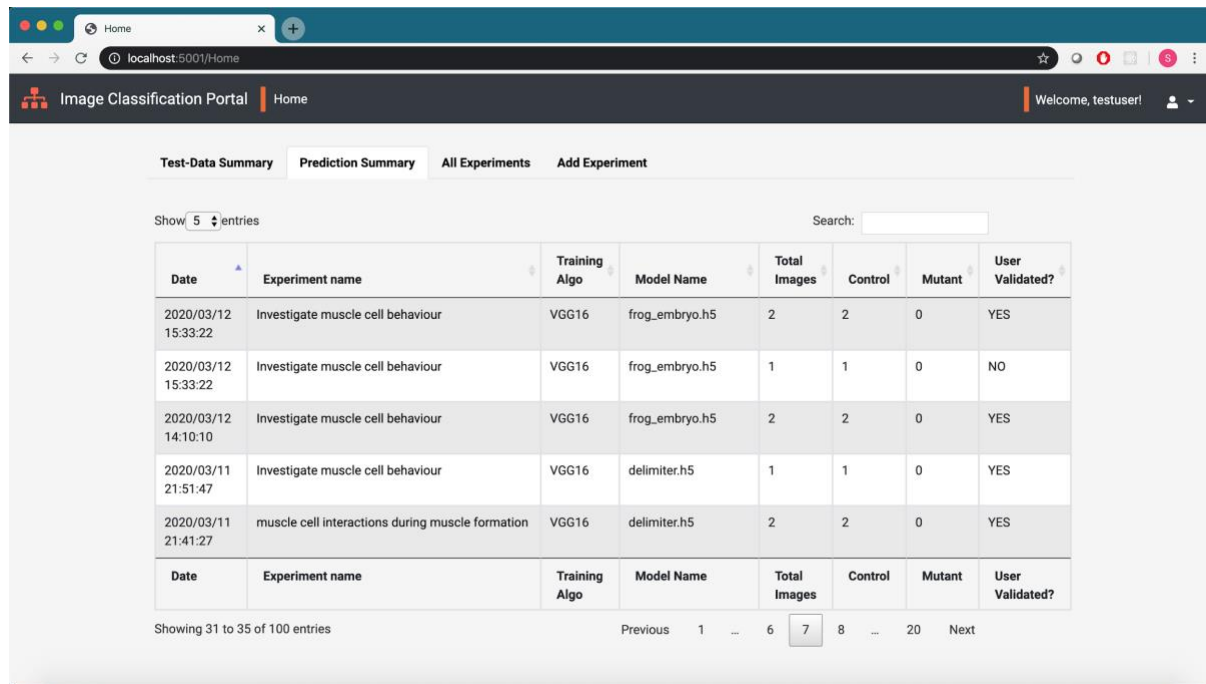
- Once user makes a choice to approve the results made by the model and confirms their approval, they get redirected to the previous predictions page once. On the previous predictions page, the user can also navigate to view details of the experiment by clicking the View Experiment link on the navigation bar:
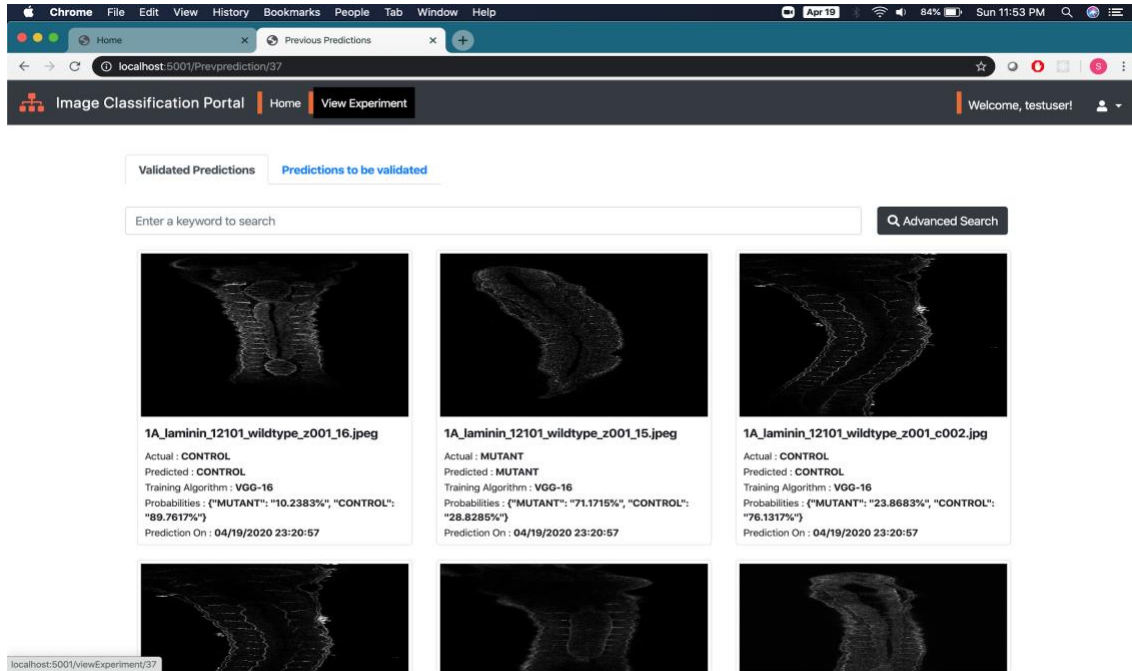
- In case the user is re-running an experiment for the second time onwards, they can click on Previous predictions on the navigation bar to view any previous predictions made for the experiment. The user can further run predictions from other models trained by them
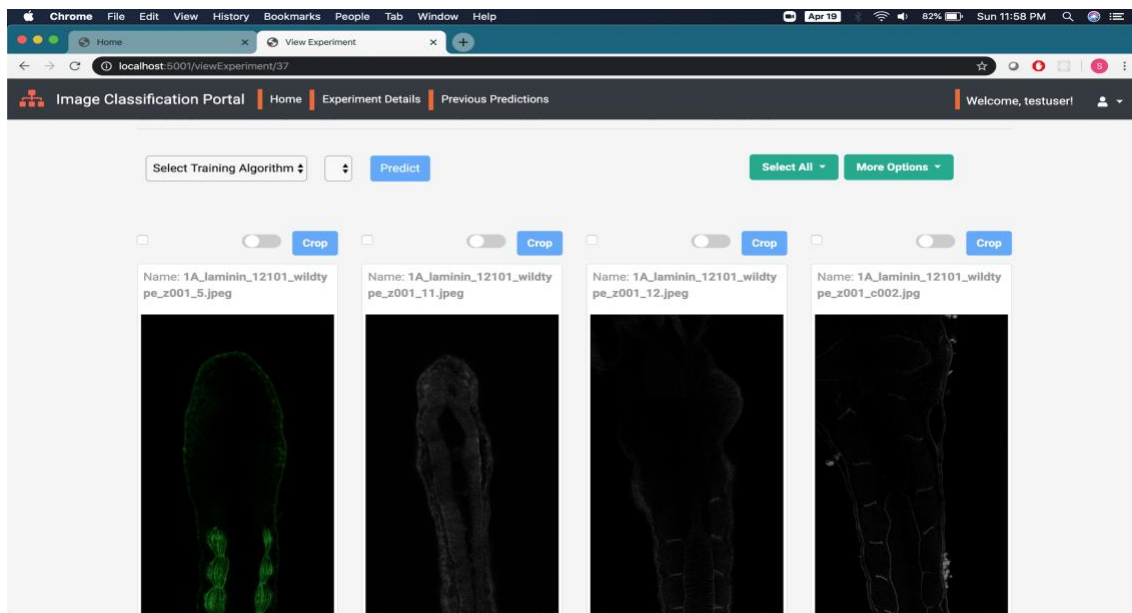
- To view the prediction results in form of a summary, user can click on 'Home' button on the header bar and click on 'Prediction Summary'. It will show a summary for all the predictions done under a user based on prediction date. It will also show total images used during the model prediction, number of control and mutant images and user validation flag.


As shown above, the user gets the functionality to search any experiment, sort results by clicking on any column, change the number of entries to be displayed on the page as per their own choice. Same features are also present on 'Test Data Summary' and 'Admin Dashboard' pages.

- 'Prediction Summary' - Click on the experiment name to view predictions made at a particular time. Hovering on the image icon will show if the prediction made by the model is correct or not. Further the user can click on the image icon to enlarge that image to further investigate
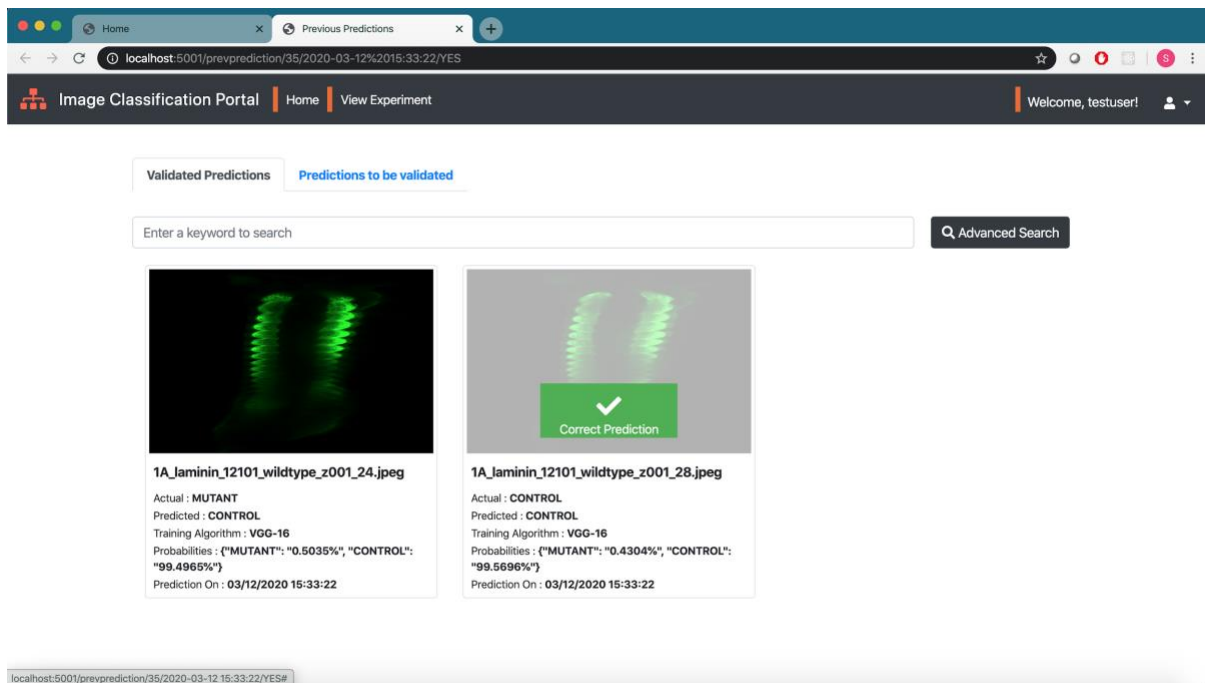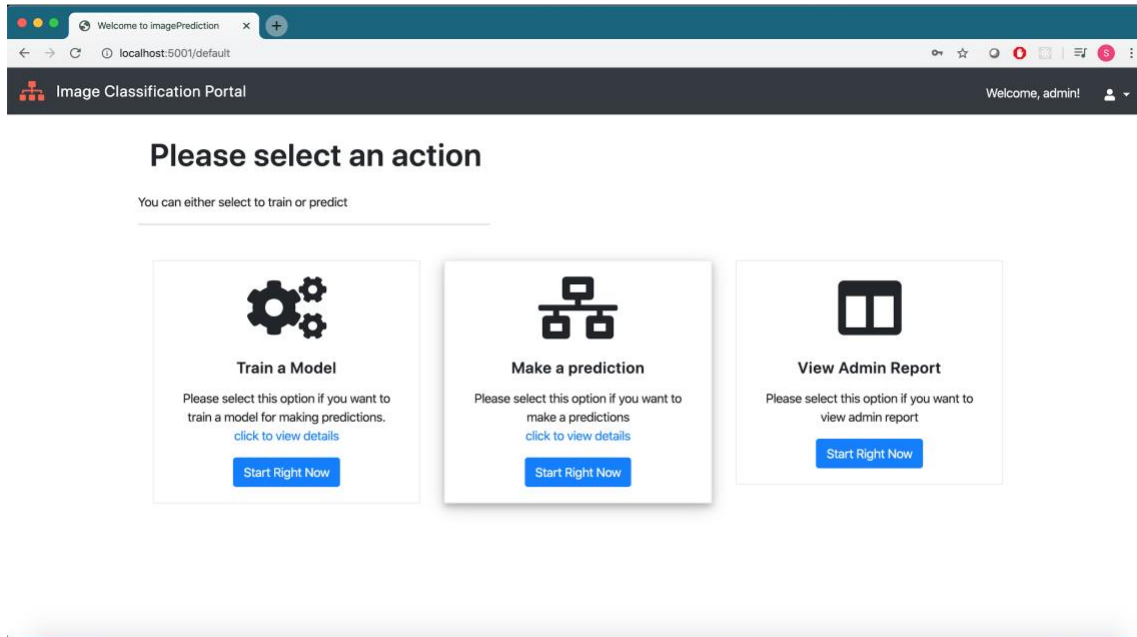
- 'Prediction Summary' - Predictions to be validated will show the images for which the user has not validated the result made by the model at a particular time. User has to click on the image to approve and confirm the results
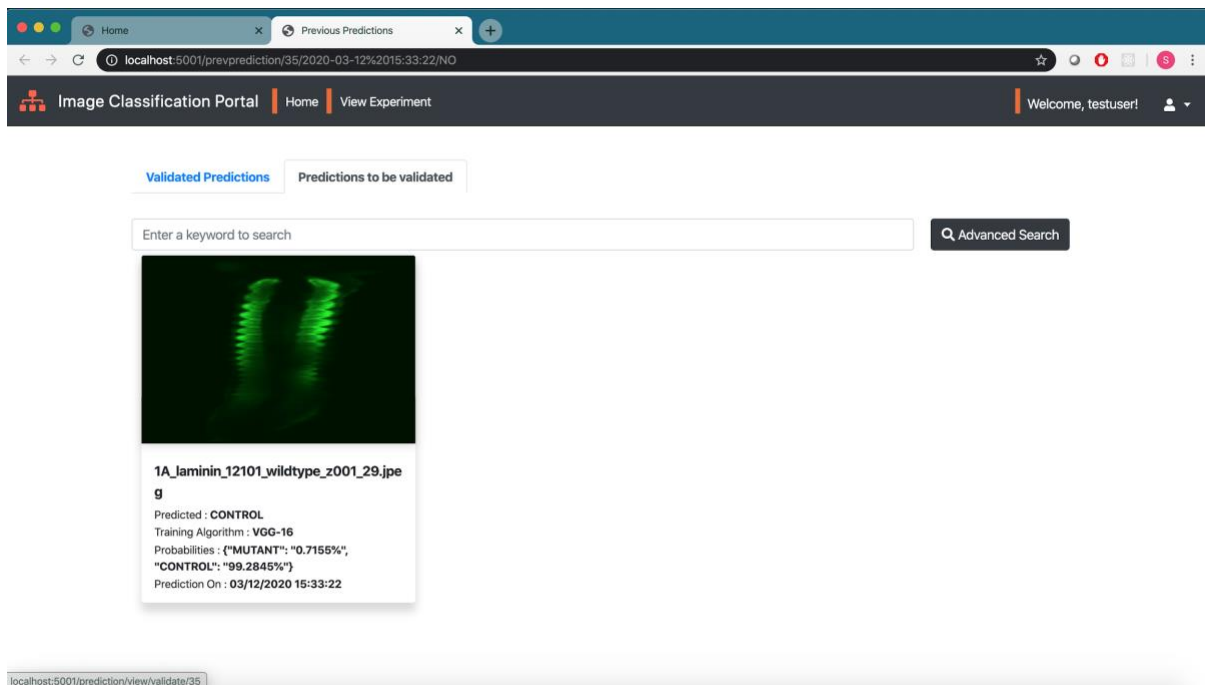
Steps for Admin

Admin user will have all the features of a normal user as well as the functionality to view admin dashboard report. This report will enable the admin to view predictions made by every user under the project.

- Admin default landing page. Click on view admin report

- Admin Report

- The admin can click on the experiment name and can see details on the prediction made by every user. By default, it will show the image name and the prediction made by the model to that image. Admin can click on Experiment details to view the experiment details like the antibody used, ECM marker details etc used in that experiment.
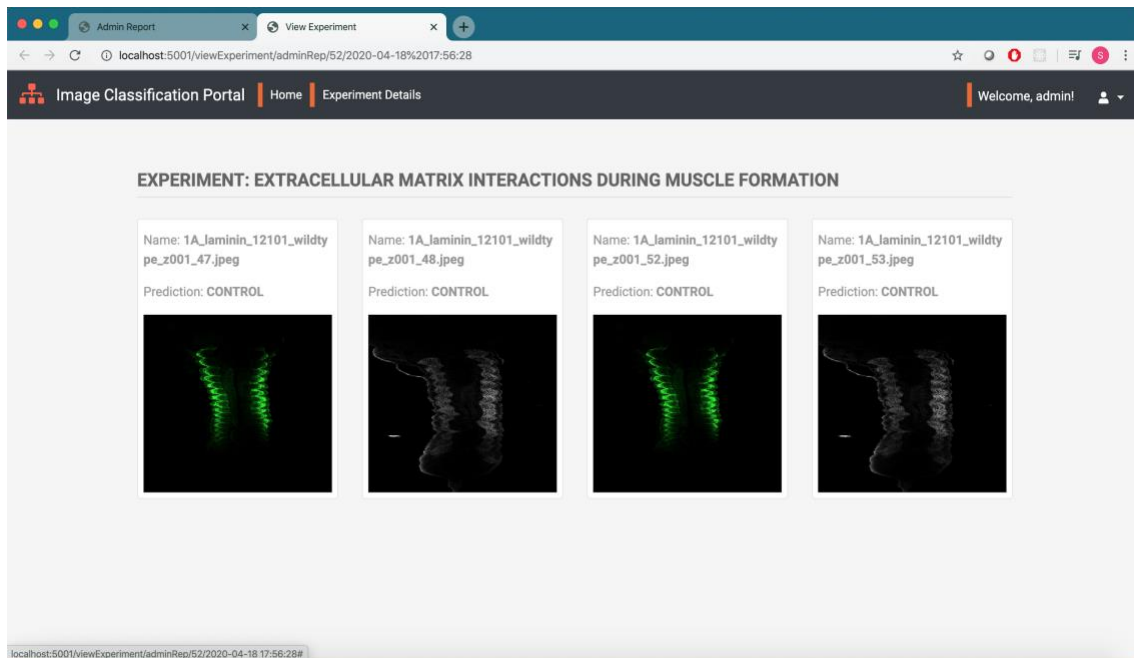
Click on an image to view its enlarged version
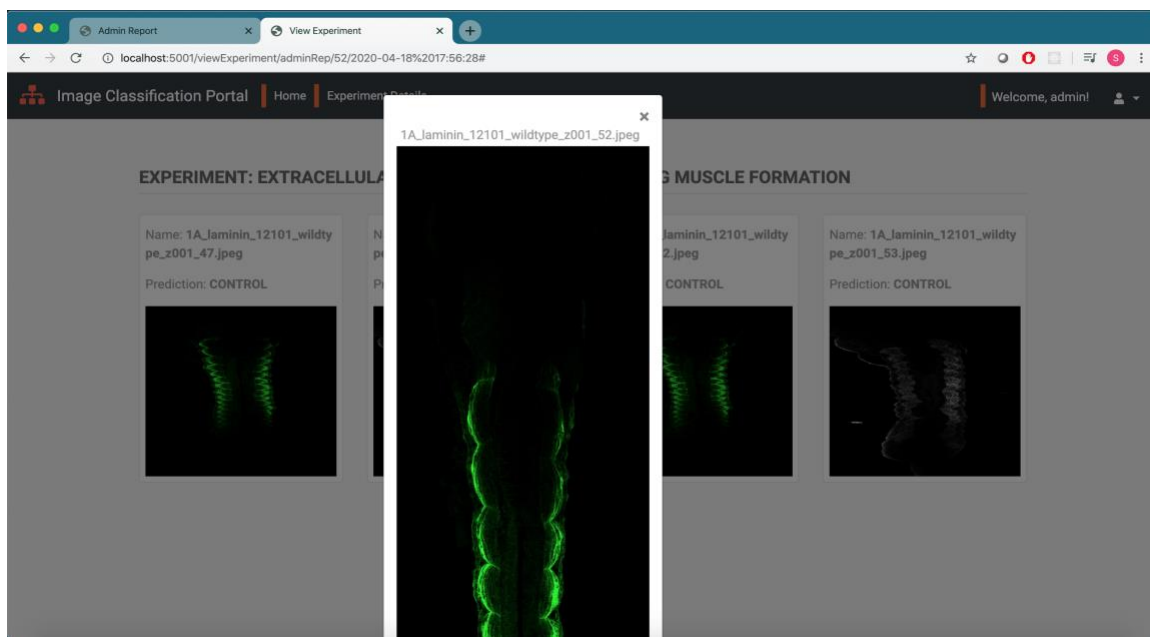
- Admin can search for a particular experiment

- Admin can list number of entries on the dashboard