Quick start

This guide first provides a high-level overview of the ADCI software and a brief sample workflow.

High-level overview

The main functionality of this software is to process groups of metaphase images called samples, count the number of dicentric chromosomes in each image using image processing techniques, and return the estimated radiation dose of samples in Gray (Gy). Two types of samples are necessary: 1) calibration samples and 2) test samples. The physical dose (in Gy) of calibration samples are known before any interaction with the software and are used to generate a calibration curve. In test samples the physical dose is unknown and is estimated by comparing dicentric chromosome frequency in a processed test sample with the calibration curve.

Sample workflow of main software elements

We present a sample workflow of the main elements of the software. You may wish to familiarize yourself with the layout of ADCI graphical user interface (GUI) before continuing.

Open ADCI software

Related pages: dongle | startup splash screen

Create or open sample

Related page: sample

If a calibration curve has not previously been generated, at least three calibration samples (known Gy) must be created/opened. The only exception to this is if you intend to generate a calibration curve by manually entering curve coefficients. Additionally, at least one test sample (unknown Gy) file must be created/opened to perform dose estimation.

Process sample

Related pages: sample | processed sample | process queue

Add sample to ADCI Process Queue
Samples created in the previous step must be processed in order to obtain dicentric counts in each sample. If a saved sample was opened, it has already been processed. To check if a sample has been processed, observe the list of samples in the mainGUI under the heading “Processed”. Unprocessed samples must be added to the ADCI Process Queue for processing. To do so, highlight an unprocessed

sample and click the  icon.

Process samples within the ADCI Process Queue
Items in the process queue can be processed individually by highlighting an item in the process queue and clicking the  icon. All items currently in the process queue can be processed sequentially in one click by clicking the  icon.

Create curve

Related pages: calibration curve | calibration curve wizard | sample | processed sample

The calibration curve wizard simplifies the process of creating a calibration curve. It is recommended to use the wizard unless you intend to manually enter curve coefficients.

Estimate dose

Related pages: dose estimation | partial-body dose estimation | doseestimationwizard | calibration curve | sample | processed sample

The dose estimation wizard simplifies the process of performing estimating dose based on existing processed test sample(s) and calibration curve.

Interpret dose estimation results

Related pages: dose estimation | console | calibration curve | sample | processed sample

Dose estimation results are visible in the console. Estimated radiation dose in Gy can be found in dose estimation results under the heading “Dose by [curvename]” where [curvename] is the ID of the calibration curve used in the dose estimation. For a more detailed description of fields in dose estimation results consult the dose estimation page.