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Contents

Sample Tracking

Workflow Management

Protocol Adherence

Instrument Clarity

Streamlined Documentation

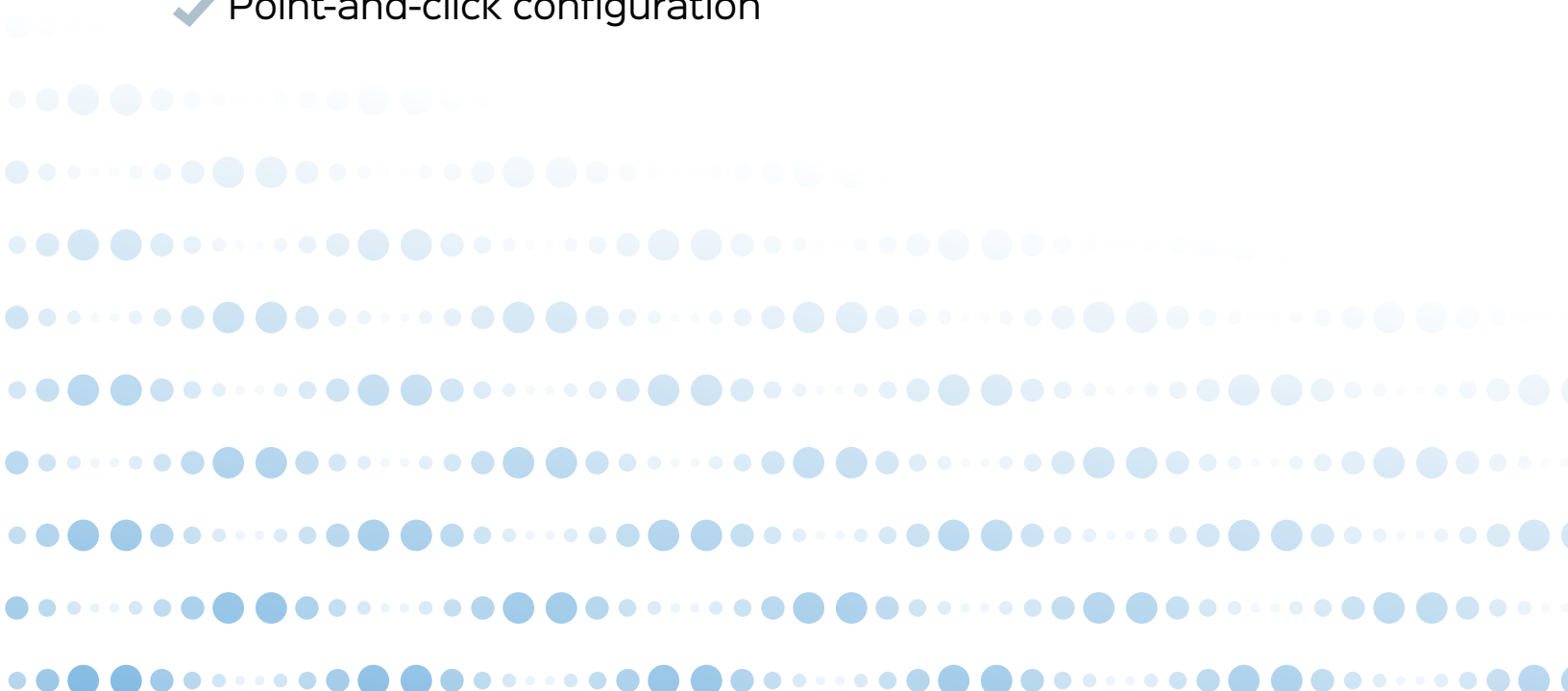
Point-and-Click Customization



Lockbox LIMS is the world's first premium laboratory information management system built natively in the cloud. Sample accessioning and tracking and workflow management have never been easier.

Core lab managers use Lockbox to monitor which workflows they use on which samples, track instrument uptime, monitor inventory, store documentation, and meet regulatory compliance guidelines.

Lockbox LIMS Features

- ✓ Workflow management
 - ✓ Sample submission portal
 - ✓ End-to-end sample traceability
 - ✓ Regulatory support
 - ✓ Instrument console
 - ✓ Inventory tracking
 - ✓ Document management
 - ✓ Point-and-click configuration
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Sample Tracking

Lockbox LIMS was built with end-to-end sample traceability in mind.

Create master submission records to capture the high-level attributes of your samples, and then use the child sample records to track the status of each sample as it moves through your workflow.

Sample Tracking Capabilities

- ✓ Three tiers of sample tracking: submission, container and sample
- ✓ Email notifications to any lab techs signaling a change in sample status
- ✓ Date/time stamp for all sample or submission status changes
- ✓ Fully customizable sample workflows
- ✓ Ability to associate samples to specific instruments and reagent lot numbers

Samples Detail				Edit Delete Clone	
Samples Name	GS10101-DNA_A01			Volume (ul)	50.00
Sample Type	gDNA			Concentration (ng/ul)	20.00
Sample ID #	000005 			Quantity (ug)	1.00
Barcode	GS10101-DNA			Source	Cell Line
Description				Location on plate	B1
Customer Sample ID	ID92039-CUS			Date Collected	4/29/2015
Customer Subject ID				Collection Method	Extraction
Submission	<u>0000015</u>			Instrument	<u>Illumina Sequencer #3</u>
Plate	<u>gDNA Submission</u>			Experiment	
Sample Status	Completed			Owner	<u>Prof Koh</u> [Change]
Sample Type	Blood				
Sub-Reads	453,453				
Created By	<u>Prof Koh</u> , 4/29/2015 10:28 PM			Last Modified By	<u>Prof Koh</u> , 7/1/2015 9:10 AM

Figure 1. Lockbox LIMS includes a robust sample-tracking functionality. You can associate each sample to an instrument, and track, enforce, and report on workflow steps. Dashboards, reports, and email alerts help users monitor sample key performance indicators such as time to sequence, sample turnaround time, and workflow velocity.

Workflow Management

Keeping track of your samples and monitoring which samples are run on which workflows is no easy task. Lockbox LIMS gives core lab managers a single platform to manage all aspects of their business – from project requests, to sample manifests, workflows, and protocols.

- ✓ Easily customize workflows and protocols to fit your lab's process
- ✓ Track which samples are run against which workflows
- ✓ Track the number of samples run against a workflow, including the time each sample enters and exits a particular workflow

Sample Detail

Samples Number	AEC-123
Sample Type	Blood
Sample ID #	000002
Description	Blood sample
# Post-Filter Subreads	286,394
# Post-Filter Bases	729,172,610
Submission	0000004
Organism	Human
SMRT Cell	SMRT100000

Current Sample Status

Current Workflow	SureSelect XT Target Enrichment
Workflow Start Date/Time	8/25/2015 8:31 AM
Workflow Complete Date/Time	8/26/2015 10:31 AM
Instrument	PacBio Instrument 1
Reagent Lot Number	929773

System Information

Created By	Lab Manager	8/26/2015 7:58 PM
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Sample History

Date	User	Action
8/27/2015 12:36 PM	Lab Manager	Changed Protocol Start Date/Time from 8/27/2015 9:39 AM to 8/27/2015 12:36 PM.
8/27/2015 12:36 PM	Lab Manager	Changed Current Protocol from Purify the indexed DNA using AMPure XP beads to Amplify the indexed library.
8/27/2015 10:31 AM	Lab Manager	Changed Workflow Complete Date/Time to 8/26/2015 10:31 AM.
8/27/2015 9:52 AM	Lab Manager	Changed Current Protocol from Purify the sample using AMPure XP beads to Adenylate the 3' end of the DNA fragments to Purify the indexed DNA using AMPure XP beads.
8/27/2015 9:39 AM	Lab Manager	Changed Protocol Start Date/Time from 8/27/2015 9:28 AM to 8/27/2015 9:39 AM.

Lookup

Search ~ Salesforce - Developer Edition

https://na17.salesforce.com/ui/common/data

Search... Go!

You can use "*" as a wildcard next to other characters to improve your search results.

Recently Viewed Workflows

- Greater Than 10 kb Template Preparation Using AMPure PB Beads
- 250bp Amplicon Library Preparation and Sequencing
- SureSelect XT Target Enrichment
- 10kb Template Preparation and Sequencing
- Isoform Sequencing (Iso-Seq™) using Clontech
- TruSeq Exome Enrichment
- Whole Transcriptome Library Prep
- TargetSeq Sample Prep
- AmpliSeq Sample Prep
- 500bp Template Preparation and Sequencing
- Pacific Biosciences Template Preparation and Sequencing Guide
- TruSeq RNA Library Prep

Figure 2. Select the appropriate workflow for your sample, and track start and end times as your sample moves through the protocols associated with your workflow. Use preconfigured workflows, or customize them by adding or modifying the protocols and steps unique to your lab's process.

Protocol Adherence

Adherence to established protocols is critical to delivering results to customers. Core lab managers use Lockbox's advanced protocol management features to configure the steps of a protocol as required and then track compliance to ensure lab techs execute each step of the protocol.

Protocol Functionality

- ✓ Associate multiple protocols and procedures to parent workflows
- ✓ Customize protocols by modifying the steps to match your lab's unique lab processes
- ✓ Enable lab techs to store results and notes for each step
- ✓ Incorporate rich text tables
- ✓ Record which samples are run against which protocol

The screenshot displays the Lockbox protocol management interface. On the left, a table lists the steps of the 'Shear DNA' protocol. On the right, a detailed view of step 6 instructions is shown, including a table of shear settings for Covaris instruments.

Action	Step Number	Instructions
Edit Del	1	Use the Qubit dsDNA BR Assay to determine the concentration of your gDNA sample.
Edit Del	2	Dilute 1 µg of high-quality gDNA with 1X Low TE Buffer in a 1.5-ml LoBind tube to a final volume of 10 µl.
Edit Del	3	Set up the Covaris F-series or S-series instrument. Check that the water in the Covaris tank is filled with fresh deionized water to the instrument fill line.
Edit Del	4	Put a Covaris microTube into the loading and unloading station. Keep the cap on the microTube when preparing multiple gDNA samples in the same experiment.
Edit Del	5	Use a tapered pipette tip to slowly transfer the 50-µl DNA sample through the pre-split septa into the microTube.
Edit Del	6	Secure the microTube in the tube holder and shear the DNA with the settings in Table 6. The target DNA fragment size is 150 to 200 bp.
Edit Del	7	Put the Covaris microTube back into the loading and unloading station.
Edit Del	8	While keeping the snap cap on, insert a pipette tip through the pre-split septa, the microTube, and the tube holder to aspirate the sheared DNA.
Edit Del	9	Transfer each 50-µl sheared DNA sample to a separate well of a SureCycler 8800.

Table 6 Shear settings for Covaris instruments using Software version 7

Setting	Value
Duty Factor	10%
Peak Incident Power (PIP)	175
Cycles per Burst	200
Treatment Time	360 seconds
Bath Temperature	4° to 8° C

Table 7 Shear settings for Covaris instruments using Software version 7

Setting	Value
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Figure 3. Protocols are broken down into individual steps. As you execute each step, you can add and save results and notes with the sample, so that you have a permanent history showing the outcome of each step in the protocol.

Instrument Clarity

Instrument performance is critical to every lab's success. Lockbox LIMS captures all the key attributes surrounding your instruments, including compliance status, validation information, standard operating procedures (SOPs), and vendor information.

The screenshot displays the 'Instrument Clarity' section of the Lockbox LIMS interface. The top navigation bar includes links for Submissions, Samples, Instruments (active), Publications, Inventory, Accounts, Contacts, Reports, Dashboards, and Items. The main content area is titled 'Instrument Illumina Sequencer #3' and includes links for 'Back to List: Submissions', 'Customize Page', 'Edit Layout', 'Printable View', and 'Help'. Below the title, there are links for 'Submissions [2]', 'Related Content [0]', 'Open Activities [1]', 'Activity History [4]', 'Instrument History [1]', and 'Notes & Attachments [0]'. The 'Instrument Detail' section contains a table with fields for Instrument Name, Category, Model, Location, Operational Status, Location (Bench), Last PM Date, PM Interval, Next PM Date, Service Engineer's Name, Service Engineer's Mobile Phone, Owner, Manufacturer, Manufacturer Serial Number, Purchase Date, Install Date, Warranty Expiration Date, Internal Asset Number, Special Operating Instructions, Compliance Status, and Validation Information. Below this, the 'Submissions' section shows a table with columns for Action, Submission Number, Owner Last Name, Sequencing Type, Shipment Date, and Submitted By. The 'Related Content' section shows a table with columns for Action, Title, Created Date, and Last Modified Date. The 'Open Activities' section shows a table with columns for Action, Subject, Name, Task, Due Date, Status, Priority, and Assigned To.

Instrument Detail	
Instrument Name	Illumina Sequencer #3
Instrument Category	DNA Sequencer
Model	HiSeq 2500
Location (Room)	Lab 3-49
Operational Status	Fully Operational
Location (Bench)	Far Right
Last PM Date	5/11/2015
PM Interval	360
Next PM Date	5/20/2016
Service Engineer's Name	John Smith
Service Engineer's Mobile Phone	(415) 834-0234
Owner	Core Lab Manager [Change]
Manufacturer	Illumina
Manufacturer Serial Number	XTR-8488384
Purchase Date	5/20/2013
Install Date	5/10/2015
Warranty Expiration Date	5/29/2018
Internal Asset Number	ILM-389483
Special Operating Instructions	Be careful while loading reagents.
Compliance Status	Fully Compliant
Validation Information	Fully validated

Submissions					
Action	Submission Number	Owner Last Name	Sequencing Type	Shipment Date	Submitted By
Edit Del	0000003	Manager	Single-end	4/14/2015	Mike Wallace
Edit Del	0000015	Manager	Paired-end	4/21/2015	John Smith

Related Content			
Action	Title	Created Date	Last Modified Date
Deliver Del	Luteolin Anti-Cancer Flavonoid	4/14/2015 9:01 AM	4/14/2015 9:02 AM

Open Activities							
Action	Subject	Name	Task	Due Date	Status	Priority	Assigned To
Edit Del	gDNA Sequence - Customer Sample C			5/4/2015 10:00 AM			Core Lab Manager

Figure 4. Track the status of your instruments from any device, including your smartphone or tablet. You can store information such as uptime, your field service engineer's contact information, and which samples are run on which instruments.

Streamlined Documentation

As one of the only LIMS on the market with comprehensive document management capabilities, Lockbox includes a module dedicated to storing the critical protocols, publications, SOPs, and regulatory documents required to run your lab.

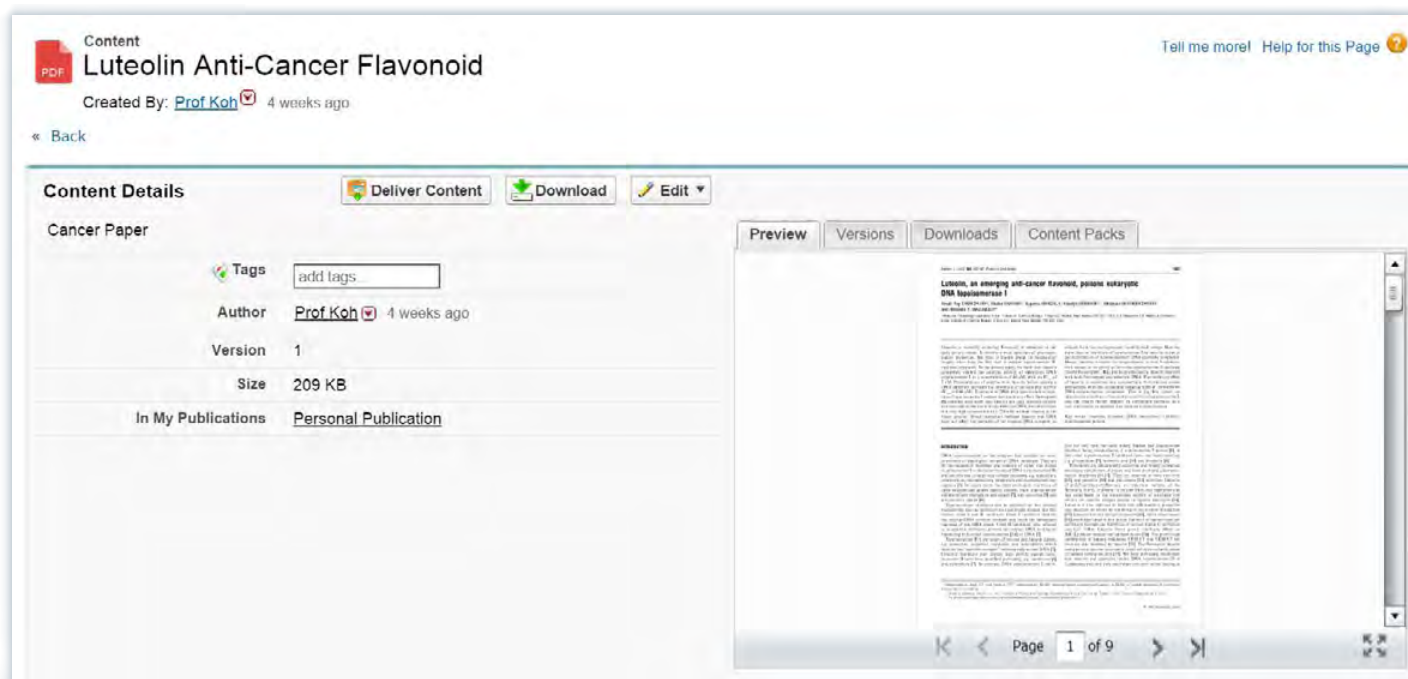


Figure 5. You can store documents of any type in Lockbox, including protocols, publications, SOPs, and regulatory paperwork. You can share documents with specific user groups or store them privately.

Point-and-Click Customization

Configure Lockbox to reflect your lab's workflow process using point-and-click customization tools. No experience in IT is necessary to update your page layouts, fields, or picklist values. You can tailor virtually every aspect of Lockbox to match your requirements, with no software coding required.

Learn more at thirdwaveanalytics.com/products