

IPA Training Syllabus

BASIC TRAINING (HALF-DAY, ~ 3 HRS)*

Introduction to Ingenuity and IPA (~30 min)

- Who is Ingenuity?
- How is literature extracted, curated, and structure?
- What is IPA?
- Overview of key features in IPA

Getting Started (~30 min)

- PC requirements/Application Requirements
- Registering for an Ingenuity account
- Logging into your account
- Using Online Help
- Navigating through IPA

Search & Pathway Building (~2 hrs)

PART 1: SEARCH (1 HR)

- Introduction to Searching
- Key Terminology
- Gene/ Chemical Search
- Functions Search
- Drug Target Search
- Advanced Search: Limiting results to a molecule type, family or subcellular location.
- Q&A
- Hands-on exercises

PART 2: BUILDING PATHWAYS (1 HR)

- Introduction to Pathway Building
- Key Terminology
- Add molecules from search results a pathway
- Understanding the legend
- General pathway navigating
- Using the Build Tools
- Using the Overlay tools
- Saving work for Future Analyses
- Q&A
- Hands-on exercises

Dataset Analysis: Interpretation of Gene, Transcript, Protein and Metabolite Data

PART 1: DATA UPLOAD AND RUNNING AN ANALYSIS (~40 MIN)

- Introduction to Data Upload and Analysis
- Key Terminology
- Setting up a dataset
- Uploading Data: Gene expression, proteomic, metabolomic data
- Setting analysis parameters and running an analysis
- Dataset File Mapping description
- Review IPA Best Practices
- Analysis Summary: Understanding your analysis results and overview of how to map your data to molecular interaction networks, cellular and molecular processes.
- Setting up Comparison analysis
- Q&A
- Hands-on exercises

PART 2: FUNCTIONAL ANALYSIS (~40 MIN)

- Introduction to IPA Functional Analysis
- Key Terminology
- Types of Functional Analysis
- Description of Ingenuity's functional ontology
- Opening the Analysis
- Interpreting Bar chart
- Interpreting the functional analysis tree
- How significance is determined
- Accessing the supporting literature evidence findings
- Q&A
- Hands-on exercises

PART 3: CANONICAL PATHWAYS (~40 MIN)

- Introduction to Canonical Pathways
- Key Terminology
- Review how significance is determined
- Pathway Analysis for a dataset
- Ratio vs. Significance
- Customization of graphical charts
- Accessing the supporting literature evidence findings
- Viewing how your data relate to curated Canonical Pathways
- Viewing the molecules involved in a Canonical Pathway
- Show CP Library
- Q&A
- Hands-on exercises

PART 4: NETWORKS (~40 MIN)

- Introduction to Networks
- Key Terminology
- Viewing your data in the context of cellular molecular networks, Network Explorer
- Algorithm description
- Interpreting networks
- Grow using only molecules from a specific dataset
- Q&A
- Hands-on exercises

ADVANCED TRAINING (HALF-DAY, CHOOSE 3-4 SESSIONS)

These training sessions are advanced training sessions. Suggested prerequisites are IPA Basic and Intermediate training.

Molecular Toxicology Analysis (~40 min)*

- Introduction to Tox Analysis
- Toxicity Content
- Tox Functions
- IPA Tox Lists
- Toxicity List Library
- Using Drug overlay
- Q&A
- Hands-on exercises

Biomarker Analysis and Analysis of Lists (~40 min)*

- Introduction to Biomarker Analysis
- Biomarker Filter
- Viewing Filtered Biomarker Results
- Biomarker Comparison Analysis parameters
- Viewing Biomarker Comparison Analysis results
- Creating Pathways from Biomarker Analysis
- Creating My Lists
- Comparing Entities in IPA (Set Analysis)
- Q&A
- Hands-on exercises

Path Designer (~40 min)

Prerequisites for this training session: IPA Basic Training

- Introduction to Path Designer
- Converting My Pathways to Path Designer Pathways
- Shapes tool
- Cell Art tool
- Background tool
- Line tool
- Edge tool
- Legend Tool
- Exporting Path Designer Pathways
- Q&A

- Hands-on exercises

Collaborating with IPA (~40 min)

Prerequisites for this training session: IPA Basic Training

- Introduction to Collaborating with IPA
- Exporting analysis summary
- Exporting images
- Exporting files
- Printing
- Email an interactive pathway to a colleague
- Sharing Functionality
- Q&A
- Hands-on exercises

INGENUITY OPEN LAB (~ 2-3 HRS)

This training session allows attendees to bring their own datasets or scientific questions. Ingenuity scientists/ trainers will answer questions pertaining to attendees' specific needs. If everyone in the group has the same question, the answers can be presented to all. If individuals have different workflows, questions, or scientific problems, the Ingenuity trainers will circulate around the room to provide individual attention. **Ingenuity Open Lab is considered an Advanced Training Session, and participants should have already completed IPA Basic and Intermediate Training before attending.**

*INGENUITY CERTIFICATION PROGRAM AND EXAM

Training sessions marked with a * indicate a requirement for the Ingenuity Certification Program. Training participants may request enrollment in the IPA Certification Program and will be provided a link to the required course materials and examination. The examination may be completed outside of the IPA training sessions and answers can be submitted on-line for grading.