

# NEXT GENERATION SEQUENCING COLLECTION

The **Next Generation Sequencing (NGS) Collection for Pipeline Pilot** offers a comprehensive set of NGS data analysis pipelines for easy analysis and interpretation of the massive datasets generated by current DNA sequencing platforms. The unparalleled power and flexibility of the new NGS Collection allows you to accommodate current analysis needs, as well as adapt to novel applications and computational methods that are rapidly emerging in the NGS landscape.

## REDUCE TIME AND COSTS WHILE MEETING CHANGING NEEDS IN THE NGS DOMAIN

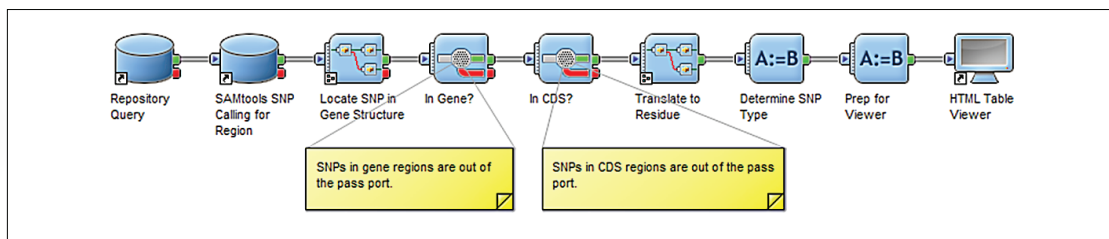
Save days or weeks of programming effort from limited bioinformatics resources by dramatically accelerating the creation, modification and distribution of new analysis methods to suit your specific research needs. You can create entirely new data processing pipelines using simple drag-and-drop construction and automate the execution of protocols saving valuable time and effort.

Save on software costs today and future-proof your software investments by providing analysis capabilities on a software platform that can quickly integrate new algorithms and computational approaches in one of today's most rapidly changing research domains.

## ENSURE QUALITY NGS ANALYSES AND INSIGHTS

Gain valuable research insight from your NGS data by using the most widely applied and best-validated analysis methods currently available for all major types of NGS experiments. Ensure quality of results based on NGS data by creating and using standard protocols throughout your research organization. These improved results help you avoid duplication of effort and costly analysis mistakes.

You can also augment your NGS analysis with the full breadth of Pipeline Pilot's advanced capabilities, including gene expression and proteomics analysis, statistics, data modeling, reporting, cheminformatics, and text analytics.



**Figure 1:** A typical NGS protocol that identifies SNPs using SAMtools, determines which ones are in coding regions and are non-synonymous, then displays the results in a web page.

**WITH THE NGS COLLECTION YOU CAN:**

- Perform comprehensive NGS analyses with a wide selection of popular algorithms, including methods for de novo assembly, mapping to reference sequences, identifying polymorphisms and structural variants (SNPs, insertions and deletions, and copy number variations), measuring RNA expression levels (RNA-Seq), and identifying transcription factor binding sites (ChIP-Seq)
- Integrate other command-line algorithms into your NGS pipelines using our industry-leading integration framework
- Efficiently manage data using powerful repository components that enable combining data across experiments, adding annotations, and performing region-based queries
- Visualize results with popular genomic browsers and visualization tools, and augment these with Pipeline Pilot’s interactive tables and graphs
- Maximize compute performance by deploying on grids or clusters using Pipeline Pilot’s own parallel processing management capabilities or those in popular grid management systems

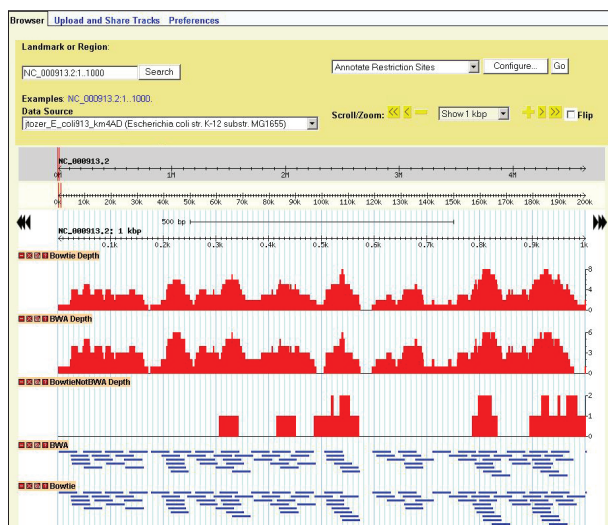


Figure 2: Use popular tools like GBrowse2 to visualize your NGS data.

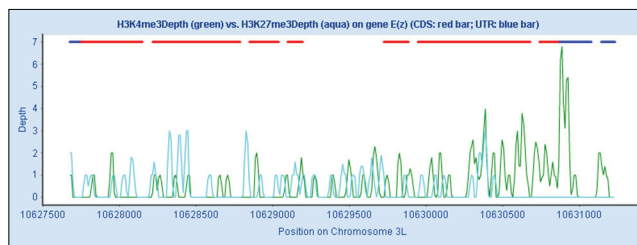


Figure 3: Comparison of transcription-factor binding patterns for 2 samples of ChIP data.

**WHO BENEFITS FROM THE NGS COLLECTION?**

- **Genomics and Translational Research Scientists:** Unmatched processing flexibility and ease of use enables researchers to create and duplicate standard processing pipelines for all major types of NGS experiments, then visualize the results and gain insights using popular visualization tools. Share pipelines with colleagues or collaborators that can be easily applied to new datasets.
- **Bioinformatics and Research IT Experts:** Bioinformatics experts can develop “best practice” processing pipelines that can be easily applied to new datasets by other users; evaluate computational approaches by easily comparing results from different algorithms; incorporate new algorithmic approaches and rapidly accommodate dynamic user requirements; and integrate advanced NGS computational techniques into existing in-house applications via web services.
- **Research Managers:** Pipeline Pilot’s flexibility and integration capabilities allow you to consolidate and simplify complex and redundant applications into a single platform, without sacrificing capability, making it far simpler to deploy new applications and less expensive to support existing needs. This is especially critical in the emerging NGS application space where the rapid pace of innovation has resulted in hundreds of public domain algorithms and dozens of commercial software applications. Unlike applications with fixed functionality, the Pipeline Pilot platform ensures that your organization can stay abreast of the NGS innovation curve, all on a single software platform.

To learn more about Pipeline Pilot, go to [accelrys.com/pipeline-pilot](http://accelrys.com/pipeline-pilot)