

Paradigm4 launches REVEAL: Single Cell app for analysing large-scale data sets

Sept. 15, 2020 by Paradigm4

15 September 2020: Paradigm4, specialist in scientific data management and scalable computation, has launched its REVEAL: Single Cell™ app to offer biopharmaceutical developers the ability to break through the data wrangling and programming challenges associated with the analysis of large-scale, single-cell datasets.

The REVEAL: Single Cell app enables users to build a multidimensional understanding of disease biology, scale to handle more samples from patients with more cells, more features, broader coverage, and readily assess key biological hypotheses for target evaluation, disease progression, and precision medicine. The app is built on top of Paradigm4's Agile Science engine, SciDB™, a next-generation analytics platform, organized around vectors and multidimensional arrays, that enables scientific data modelling, storage, and large-scale computation. This all-in-one, enterprise-ready storage and elastic computing platform is a massively parallel, transaction-safe, array-oriented, analytics solution.

The REVEAL: Single Cell app enables scientists to make connections across large data sets and combines multiple 'omics modalities to test hypotheses. Users can select cells of interest across any or all studies using individual metadata tags to evaluate tissue distribution, variance in response to treatment, and for comparisons of normal to diseased cells. It features GUIs and R, Python, and REST connectors for data management and analysis.

The solution allows scientists to ask more questions of their data and gain better insights with improved efficiency. The higher-level interface means that there is less programming required to access and analyse data. Query times can be taken down from days and weeks to minutes. Users can organize datasets intuitively in their own data models, transforming ways of working with single cells.

Recently, in partnership with a leading pharmaceutical company, Paradigm4 used the app to analyse cells in the COVID Cell Atlas – a database of cells which stores information from patients infected with COVID-19. Zachary Pitluk, Vice President of Life Sciences and Healthcare at Paradigm4, commented: *"When Covid-19 hit earlier this year, we used our REVEAL: Single Cell app to identify tissues expressing the key SARS-CoV-2 entry associated genes in seconds. We found they were expressed in multiple tissue types, thus explaining the multi-organ involvement in infected patients observed worldwide during*

the ongoing pandemic.”

Marilyn Matz, co-founder and CEO of Paradigm4, commented: *“With the launch of REVEAL: Single Cell, we support scientists in breaking through the complexities of working with massive single cell, multi-patient datasets. Accelerating drug and biomarker discovery is a key driver for our customers. Our Agile Science engine, SciDB, with its REVEAL apps, transforms the way researchers integrate, share, and gain insights from multimodal scientific data.”*

Other apps developed by Paradigm4 include the REVEAL: Biobank™ app, which brings together multiple data types, such as multi-omics data; practitioner, hospital, diagnostic codes and prescription history; as well as biometric and imaging data to support scientists in population-scale translational medicine and healthcare research.

For more information about Paradigm4, visit <https://www.paradigm4.com/>.

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About Paradigm4:

- Based in Waltham MA.
- An Agile Science™ platform serving up science-ready data and enabling scientists to quickly analyse their data.
- Specialists in scientific data management and scalable computation.
- REVEAL™ provides end-to-end application-specific solutions transforming hypothesis and evidence generation to advance drug discovery, biomarkers, and precision medicine. Scientists can discover and confirm findings across complex, heterogeneous data from proprietary and public datasets.

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