

# A Scientific R&D Platform for Startup Biotech to Large Biopharma

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How informatics consultant Bob Coner leverages Dotmatics solutions for companies of all sizes



**Dotmatics**



## **Bob Coner**

*Independent Informatics  
Consultant*

- *20 years building and deploying solutions for informatics, data capture, and analysis*
- *Has worked with large industry leaders*
- *(Eli Lilly, Pfizer) to small biotech startups (Peloton Therapeutics)*
- *Leverages Dotmatics solutions to deliver:*
  - *biology and chemistry ELNs to internal and CRO scientists*
  - *unified platform for data collection, querying, and analysis*
  - *registration and inventory systems*
  - *patent-document-generation tools*

*Bob relies heavily upon Dotmatics solutions when building informatics systems that his clients can use throughout their discovery workflows.*

*Bob Coner knows informatics. For over 20 years, he's helped pharma and biotech companies build solutions to streamline their research processes and unlock the promise of their data and people.*

Bob has worked with companies of all sizes, from industry giants like Eli Lilly and Pfizer to academia-based startups like Peloton Therapeutics. The informatics systems he's built have been used by more than 1,700 scientists at various sites across the world.

Bob relies heavily upon Dotmatics solutions when building informatics systems that his clients can use throughout their discovery workflows. With Dotmatics, he can deliver solutions that are at once flexible and scalable, letting him quickly meet his clients' immediate needs, while also positioning them for growth in the future.

There are several reasons Bob uses Dotmatics solutions in his consultations, including the following:

### **Web-based thin client**

Dotmatics solutions work with both Mac and Windows with nothing more than a browser. Bob can easily deploy Dotmatics solutions to his clients' various sites and CRO partners, even if they have low bandwidth or limited IT support.

### **Modular subscription model**

There is no big upfront investment. Bob's clients can pick and choose what Dotmatics functionality they want to purchase and then pay per user. There is a low barrier of entry for smaller clients and the system can easily scale as they grow.

### **One-stop shop**

Choosing Dotmatics as a single vendor for everything eliminates the burden of working with multiple vendors and making their products work together on your own

### **Flexible hosting**

Clients can host the server themselves or they can have Dotmatics do it for them, thereby eliminating the need to spend money for servers and hire internal support staff, such as server or database administrators.

### **Supports the entire research workflow**

Dotmatics solutions can support the entire research workflow—from design, to synthesis, to sample logistics, to screening and analysis.

## Informatics and IT at a Biotech Startup

Bob was commissioned by Peloton Therapeutics shortly after its formation, to do all their informatics and IT work. What he found was a scene common at many start-ups—manual processes, disconnected software, and even paper notebooks. Bob had his work cut out for him.

He put together a plan to transition to Dotmatics solutions throughout the team's entire research workflow, including the key areas highlighted in the table below and discussed in more detail on the following pages.



<i>Old Process</i>		<i>With Dotmatics</i>
<b>ELN</b>	Researchers were using paper notebooks for IP capture.	<ul style="list-style-type: none"><li>• Cross-functional ELN for use by both chemistry and biology groups</li><li>• Discipline-specific features to streamline user experience</li><li>• Direct access to essential functions like registration and inventory</li></ul>
<b>Compound Registration</b>	Team was manually registering structures in Excel	<ul style="list-style-type: none"><li>• Bulk upload and registration of already existing structures (converted from Excel to SD file)</li><li>• Direct user access (including CRO users) to new compound registration from ELN</li><li>• Registry ID for each structure</li></ul>
<b>Assay Management</b>	Analysis and IC50 curve calculation were being done with a graphing and statistics program.	<ul style="list-style-type: none"><li>• Data automatically pulled from readers, dose-response curves calculated, and results published for querying and analysis</li><li>• Easy capture of complex assay data analysis protocols</li></ul>
<b>Data Querying and Analysis</b>	All the data generated were put on a file share in PowerPoint and Excel.	<ul style="list-style-type: none"><li>• Single, secure warehouse for all corporate data</li><li>• Forms-based, fast querying of project-specific data (e.g., assay, PK, stability)</li><li>• Detailed analysis and reporting (e.g., HTS data analysis)</li><li>• Patent-document generation (custom add-on)</li></ul>
<b>Inventory Management</b>	All materials and inventory were managed in Excel.	<ul style="list-style-type: none"><li>• Fully searchable sample and reagent management</li></ul>

## Supporting the Entire Research Workflow

To give a better idea of the Dotmatics solutions he rolled out, Bob gave us a few specific examples.

### Electronic Lab Notebook

The chemists immediately loved the Dotmatics ELN. They found that it was not only easy to use, but it also had everything they needed in one place, including:

- Reaction sketching
- Stoichiometry grid
- Write-up notepad
- Countersigning and creation of an encrypted PDF of the experiment for IP capture
- Compound registration

### Compound Registration

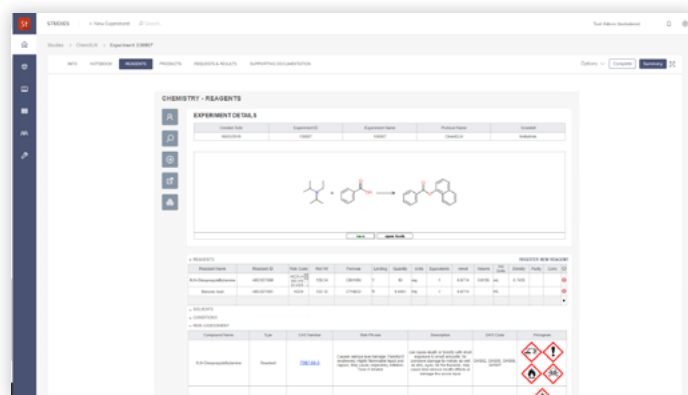
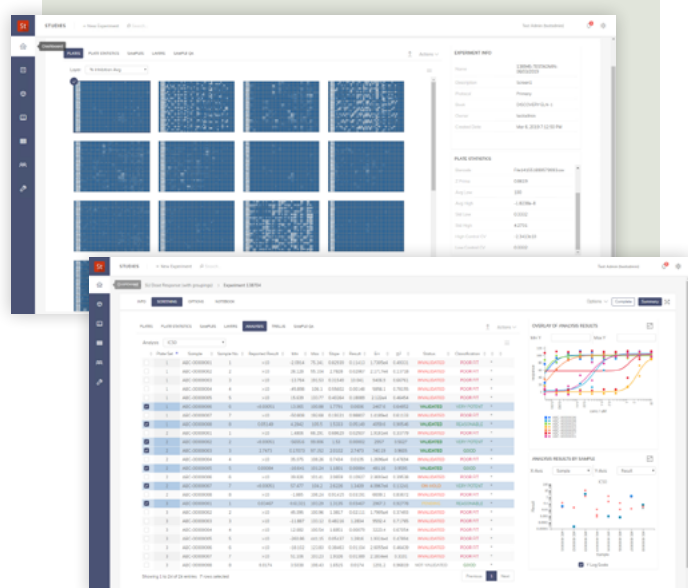
Because Dotmatics solutions span the research workflow, processes such as compound registration are streamlined. With Dotmatics, as soon as chemists add their product structures and associated details to the ELN, they can simply push the “register product button” and a pop-up box appears, allowing direct registration with creation of a registry ID.

Bob notes that the company found this particularly useful when working with CROs, adding that their worries about security were put at ease when they saw how easy Dotmatics makes it assign project code aliases and separate CROs from one another.

### Assay Management

Bob also used Dotmatics solutions to manage Peloton’s assay data. This involved:

- **Processing reader files** – Data from equipment, such as assay readers, was uploaded to Dotmatics.
- **Laying out the plate** – Biologists could quickly assign sample IDs and drop wells with aberrant data as needed.
- **Analyzing the data** – The system automatically calculated and classified curves, letting users drop points as desired.



## Data Querying and Analysis

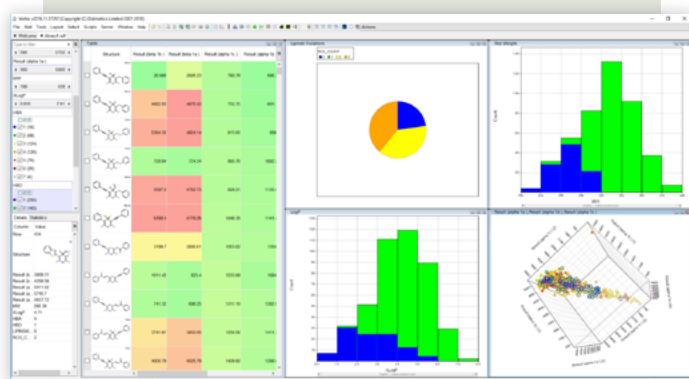
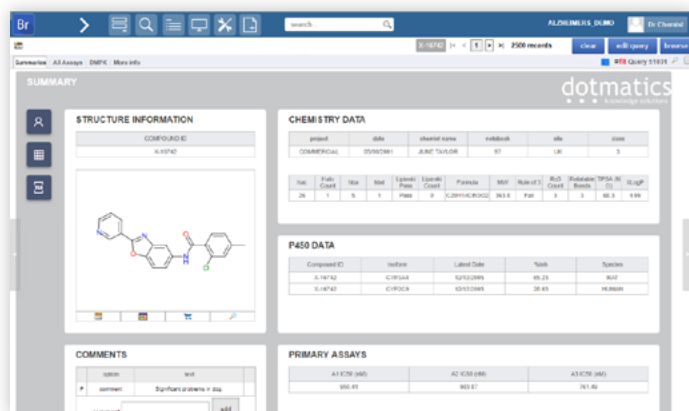
Using Dotmatics throughout the research workflow also means that all data is in one central place. Users don't need to waste time formatting data and moving it in and out of different systems. Dotmatics has sophisticated data querying, reporting, and analysis capabilities that empower companies to truly put their data to work.

One of Bob's favorite things about using Dotmatics web-based data querying and reporting functionality is that it allows the creation of multiple tabs views. This essentially give teams instant access to the data most important to them. He cites a few specific examples, such as when he used Dotmatics to display assay results and ADME/DMPK data using individual tabs for stability, permeability, etc.

He explains, *"With Dotmatics, you basically have a built-in forms builder. You can create data sources, drop those on a form, and adjust how they look. We created all sorts of tabs, including summary tabs, a calculate-properties tab, an inventory tab, and a patent data tab."*

Dotmatics also makes it easy to select data of interest for more detailed analysis using its high-dimensional data analysis, pivoting, and visualization tools.

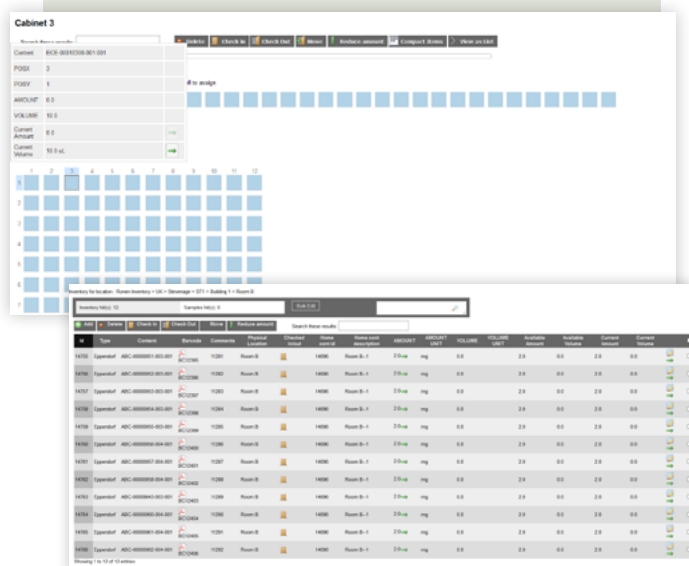
For example, Bob's team leveraged this functionality to scrutinize their HTS data.



## Inventory Management

Inventory management with Dotmatics is extremely flexible. Bob explains, *"It's essentially a hierarchical tree of 'containers' and anything can be a container—a room, cabinets in that room, shelves within that cabinet, boxes on those shelves, etcetera. You can drill down to the precise location of every item in your inventory."*

Bob used Dotmatics to track all sorts of things, including frozen cell samples and reagents. He adds, *"Basically you can put a barcode on anything, track it using the inventory features in Dotmatics, and easily search for it using Dotmatics Browser."*





## Custom Extensions

Dotmatics' open platform makes it easy add on third-party applications or custom extensions, which can tie into same united data warehouse and processing platform. Bob sites two examples of custom extensions he created – analytical data upload functionality and a patent document generation tool.

## Analytical Data Upload

Before describing the solution that he created, Bob notes that Dotmatics now has capabilities for uploading data from analytical instruments. *"So don't go writing your own scripts for this now,"* he jokes. But this functionality wasn't yet available when he first needed it, so he built it. He wrote scripts to automatically pull data off analytical instruments and then mine that data and push it into the team's ELNs.

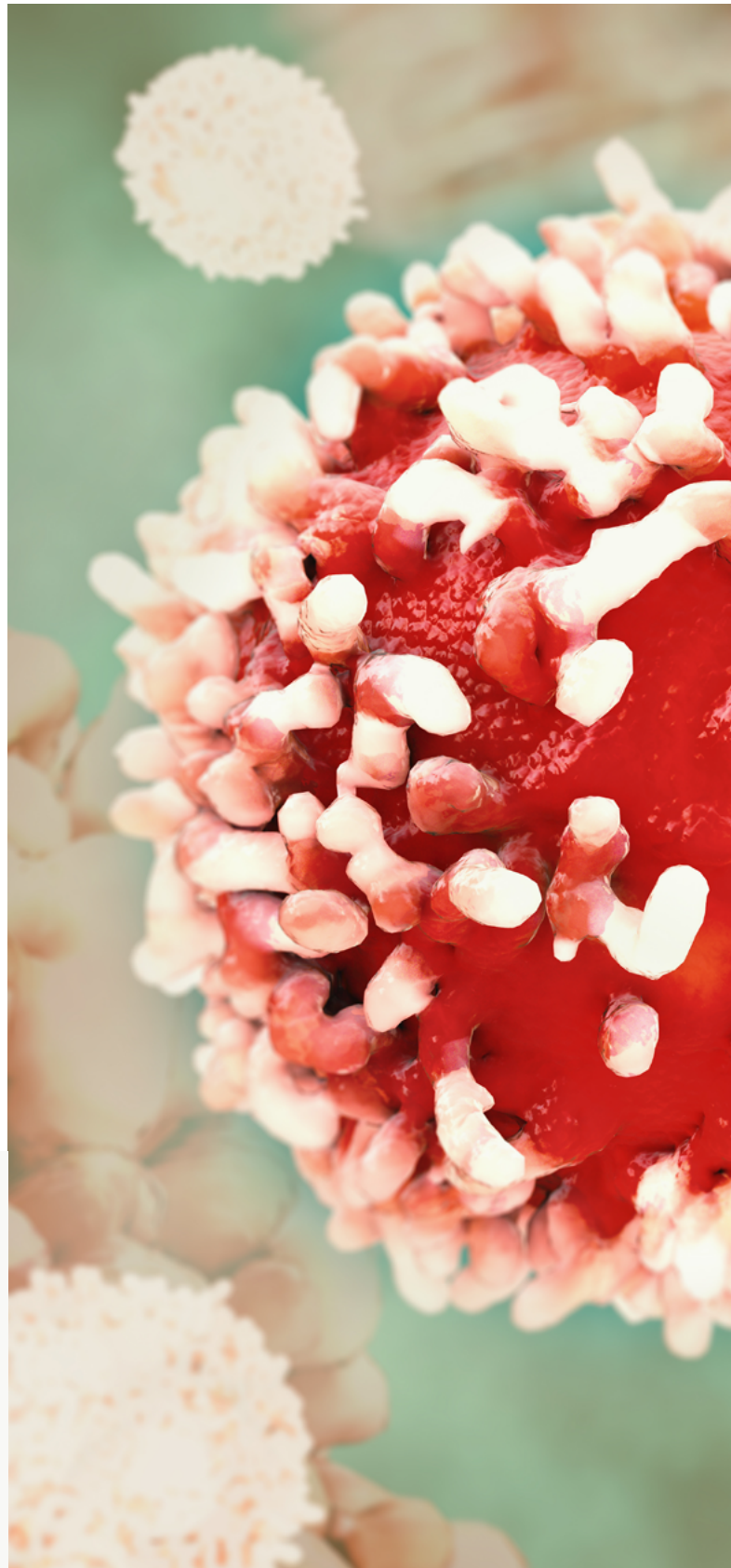
With Dotmatics' openness and some simple scripting, he was able to meet his team's request that the solution:

- Work for both LC and NMR instruments
- Take no longer than 24 hours after creation to add spectra to Dotmatics
- Exclude certain spectra from being added
- Indicate which spectra goes with which notebook and page
- Never add spectra to a closed notebook page
- Never add a spectra that has been removed manually from a page

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## Patent Document Generation

A second example of a custom add-on that Bob created was a patent-document generation tool. He explains, “Our patent agent needed to build complex data tables for inclusion in patents. As you can imagine, this was taking a ton of time.”

Bob used Python and a few other packages to create documents that pulled together all the data that the patent agent needed, which included things like:

- Structure data, example number, IUPAC name, and associated mass spec data
- Assay data, example number, assay activity classification (potency rating)

Bob explains, “With this add-on, the patent agent could then just take the compiled document and drop it right into the patent, which made his life so much easier.”

## From Start-Ups and Beyond

The examples in this case study provide just a high-level overview of the Dotmatics solutions that Bob can help deliver. Whether you're a small start-up or a large company with existing systems in place, Bob helps teams streamline their research processes with Dotmatics solutions.

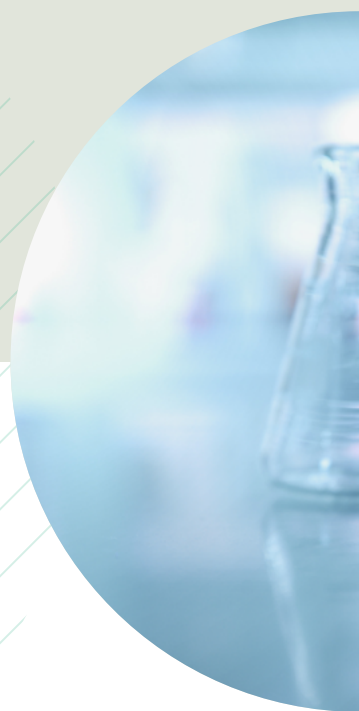
Find him on [LinkedIn](#)

*“Dotmatics is so flexible, scalable, and easy-to-use right from the get-go. This makes it a great choice for all my clients - from biotechs that are just starting up to larger organizations who need to work with their existing systems.”*

**Bob Coner**

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