



Faster and better life science research

We reduce time to scientific result and improve chances of scientific success through:

- Custom-designed research software and
- Bioinformatics application integration

Being the first in the market with groundbreaking scientific results is the key to personal, scientific, and commercial success in both public and private research organizations.

In a world of increasing complexity, new technological innovations, and a dramatic increase in data volumes, an obvious road to better scientific results and faster research processes is to streamline and improve the IT systems supporting the research.

CLC bio has a proven track record of helping our customers succeed in a complex and challenging scientific environment through custom-designed bioinformatics software and though bioinformatics application integration.

Some of our recent consulting assignments are

- Integration of CLC Main Workbench with LIMS system including both data pull and data push
- Short read assembly and down-stream analysis of human genome, among others including SNP detection, DIP detection, comparison with other genomes, CNV analysis
- Development of customized *de novo* assembler for Malaria genome assembly

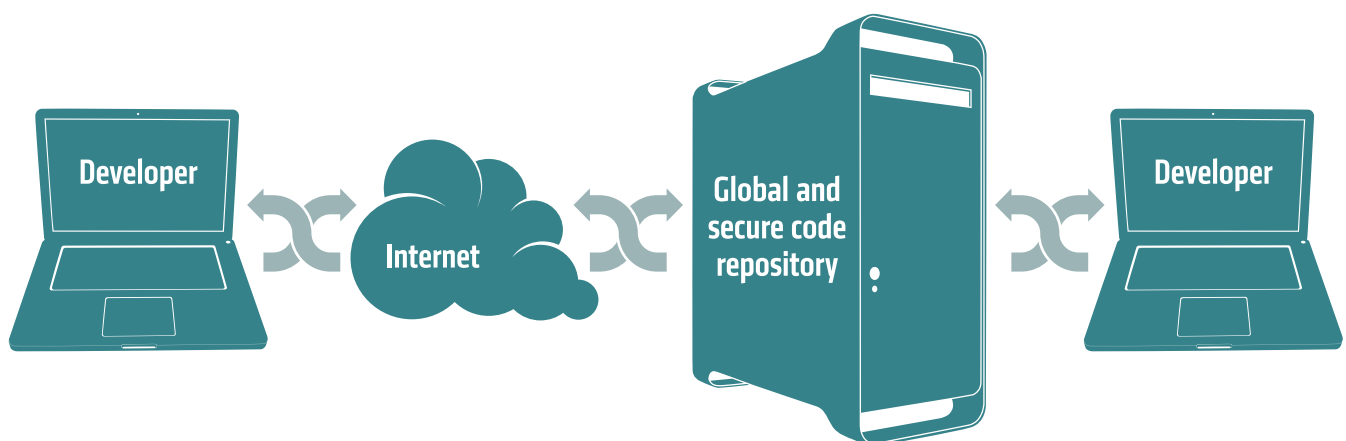
PDM Operations Manager at Abcam, Cambridge, UK:

The CLC Protein Workbench with bespoke Abcam plug-in has significantly increased our throughput capability for antigen design. The user friendly software coupled with intelligible graphics makes it an ideal solution to our design needs.

- Integration of SIMD accelerated alignment algorithm in complex research workflow
- Making analyses in CLC Main Workbench dependent on information pulled from LIMS system
- Development of special Copy Number Variation analysis-tool
- Development of special epitope-prediction tools
- Automation of workflow for reverse vaccinology
- Automation of workflow for analysis of antibody repertoires

Delivered benefits for our customers

- New knowledge about the genome of special strain of Malaria
- 40-page scientific report on genome of a given human individual, including a wide range of groundbreaking news on human genomic variations
- Freeing on one Full Time Employee to do valuable scientific research instead of manual repetitive work tasks of copy-pasting and using web based analysis tools
- Automation of manual and tedious tasks making it less error-prone.



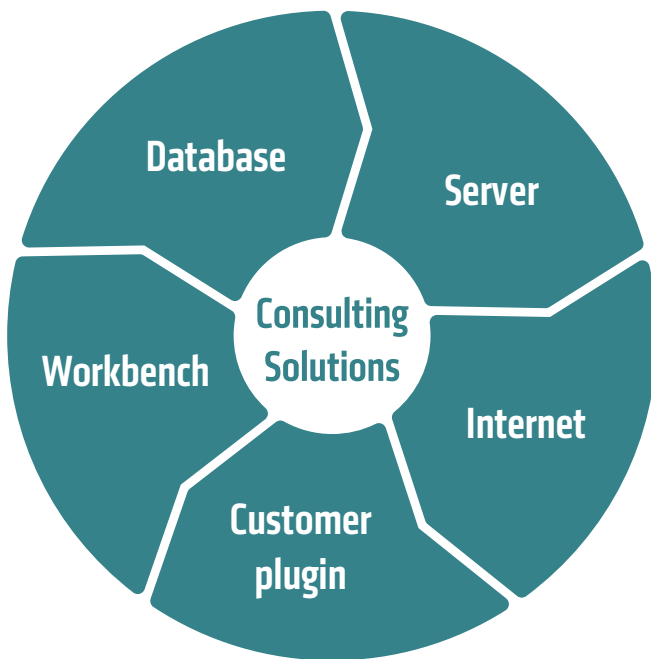
A CLC bio developer connects through a secure connection to a server at the customer to assist in developing specific plug-ins and integration code for the customer. If preferred, the source code can be hosted at CLC bio.

Why our customers choose CLC bio

Each day, every research organization is faced with the question of whether to spend internal human resources on improving workflows and make research more efficient, or whether to ask external experts like CLC bio for help – a classical “Make or buy” decision.

The Top 5 reasons why our customers choose CLC bio to supplement their own internal bioinformatics development work are

1. CLC bio builds customized solutions on top of an award winning platform of flexible components .
2. CLC bio offers a compelling and flexible pricing structure
3. CLC bio delivers the agreed solution on time at the agreed price
4. CLC bio ensure that there are no dependency on single individuals
5. CLC bio provides the needed skills and resources



1. Use of CLC bio's pre-developed, comprehensive bioinformatics platform

In 9 out of 10 cases, part of the solution needed by our customers are already developed and implemented in our Workbenches or Server Solution. We have spent more than 100 man years on developing these solutions, and we do not charge extra for our customers' use of that code for their own projects.

Customers asking for 6 months of consulting work on top of the 100 man years already spent by CLC bio, thus get 100.5 man years' of work for the price of 0.5.

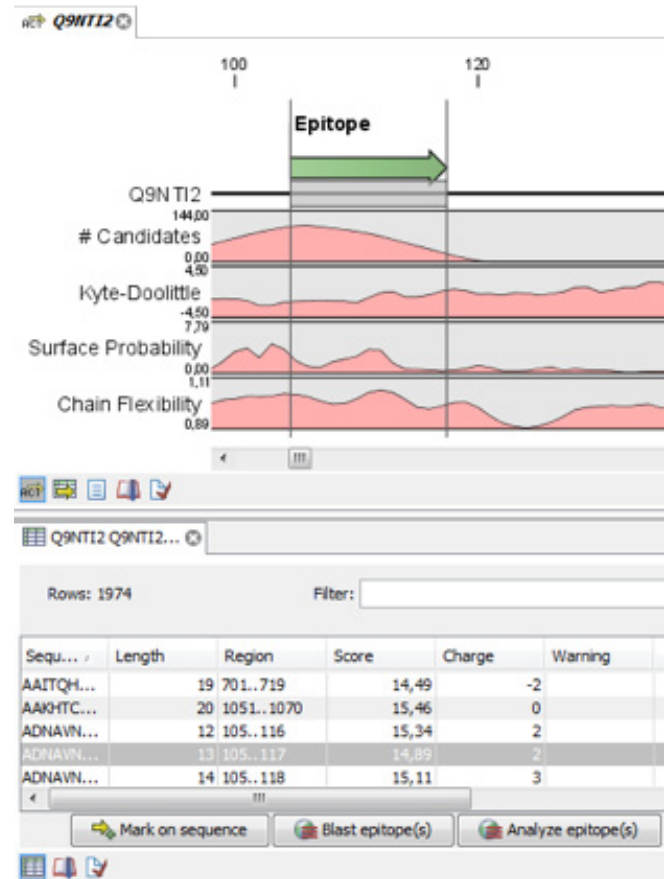
Such effectiveness driven by use of pre-developed bioinformatics components is rarely an option when it comes to internal development.

2. Delivery of the agreed solution on time at the agreed price

Internal IT development often result in significant time overruns because of

projects often being more complex than expected, because of lack of human resources, or because of organizational changes during the project. Time overruns result in lack of scientific results, and very often also in cost overruns.

CLC bio's core competency is to develop complex bioinformatics solutions, and our primary focus is to deliver the agreed solution at agreed date, and at the agreed cost. Our delivery and customer communication processes is optimized to reach these goals in the best possible way.



3. Variable and controllable costs

The costs of internal IT development are not fully variable. If more human resources are needed, more employees need to be hired, and an additional fixed cost is incurred. Development on a consulting basis is a variable cost depending only on how much work is agreed upon.

4. No dependency on single individuals

The design and functionality of internally developed IT systems is rarely documented at a very high level of detail, and research organizations are therefore often depending on the employee originally developing the software to fix errors, maintain the code and to expand it with new functionalities. Such dependency on single individuals can turn out very problematic.

CLC bio documents and develops software at a high professional standard, resulting in no dependence on single employees in CLC bio. This ensures that

there are always the people needed for training, maintenance, upgrades, and expansions.

5. The needed skills and resources

It is often hard to find the employees with the necessary skills within bioinformatics, molecular biology, biochemistry, next generation sequencing, workflow design, computer science, data management, and IT usability.

Especially in bioinformatics projects where a range of diversified skills are needed, it can be hard to set the best possible team unless the developer organization is relatively large.

CLC bio has presently 15 employees focusing solely on developing complex bioinformatics solutions for our customers. We have all the skills needed, and we hire more if this is to the benefit of our customers.

Co-Development

We have great success with co-development projects, where the customer's own employees develop a part of the project. CLC bio takes care of the remaining project and guides the employees of the customer. Such a project-organization keeps the costs down to a minimum for the customer.

- Kick start development for customer.
- The customer learns to use the API/SDK.
- Customers can track development process and supply ideas and comments.

Modular design

This ability of creating additional functionality is possible due to the important modular design paradigm in CLC bio's application development process. This important paradigm makes it possible to maintain and develop a wide range of applications based on a shared and well defined application core.

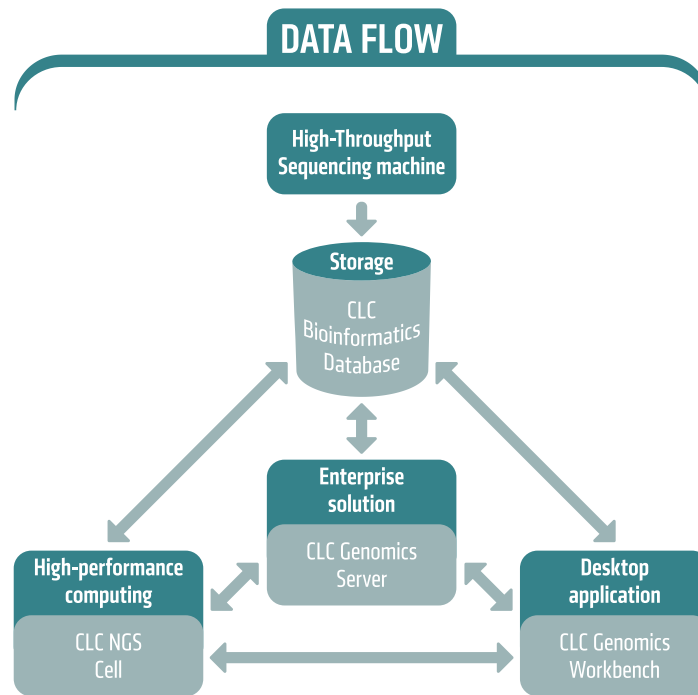
The Workbench product line, the CLC Bioinformatics Database product line, and the CLC Server product line are all following this paradigm. All products thus have a very small stable and well tested core application code, and the actual product is designed as "plugins" that is applied to the core dynamically as they are needed.

Advanced Software Developer Kit

CLC bio's open and modular IT architecture allows both CLC bio's employees

and our customers to develop additional functionalities for our Workbench products and Server products. Functionalities like e.g. additional analyses, statistics, reports, or graphical viewers will be fully integrated in the products. A new type of analysis will simply be available in the toolbox of choice like any other analysis.

Some customers develop their own functionalities from scratch. Others integrate existing tools – e.g. command-line based analyses - with our graphically based products. This improves usability and makes deployment of analysis-tools to the organization easier.



Open API

The interface (API) of the core application is open and described on CLC bio's Developer Connection: <http://connection.clcdeveloper.com>

All CLC bio's customers are free to use our Software Developer Kit for developing additional modules and plug-ins. The only skill needed is experience in Java development. CLC bio's Developer Connection explains all the details needed, including tutorials and code examples. You can read more on www.clcdeveloper.com

Our Software Developer Kit is presently being used in our internal product development, by consulting customers who engage in co-development activities, and by a wide range of Workbench and Server customers working with development of new functionalities and with integration of third party tools with their CLC bio products.

Flexible and controllable development process

Our consulting work is carried out in close collaboration between the customer and our adept team of more than 15 experts within bioinformatics, molecular biology, microbiology, biochemistry, mathematics, statistics, database design, and computer science.

Some customers prefer CLC bio to manage and carry out all development work, in order for them to focus their resources on other projects.

Other customers prefer to carry out the most of the development work themselves, giving CLC bio a more guiding and advisory role. This approach is preferable if the customer's own employees are to take over the code maintenance afterward, and/or if the customer has employees that can help with the development in order to keep costs down.

No matter what type of development process is followed, there are frequent meetings between CLC bio and the customer – typically bi-weekly telephone meetings - to ensure that timelines are kept and that the product-development and the costs are progressing as planned.

When we engage in co-development assignments, there are of course daily contact between the two development teams.

Contract and delivery

Before the work starts out, there is a structured process of describing the needs of the customer and our solutions to it, as well as deciding on timelines, development process and costs.

About CLC bio

CLC bio started commercial activities on January 1, 2005.

After years of impressive growth in the number of employees, in global representations, in the number of customers, and in the number of bioinformatics programs, this is CLC bio today:

- We are headquartered in Aarhus, Denmark
- We have offices in six countries: USA (Boston, Maryland, and San Diego), UK (Nottingham), India (Hyderabad and Delhi), Singapore, Japan, Brazil (Rio de Janeiro) and several reseller offices located around the world.
- We have a strong product line that is continuously evolving:
 - Bioinformatics software solutions
 - High Performance Computing solutions
 - Database Solutions
 - Server Solutions
 - Bioinformatics Consulting solutions
 - Bioinformatics Education solutions

A typical process looks like this

- 1 Initial meetings for CLC bio to understand the customer's need and for the customer to get insight into how CLC bio plans to solve these needs.
- 2 CLC bio writes up a draft contract including a Statement of Work describing the needs and the solution.
- 3 The draft contract and Statement of Work is discussed and adjusted to fit the exact needs of the customer. The deliveries, timelines, and the price are agreed upon.
- 4 The final contract is drawn up and signed.
- 5 The work is typically carried out in several phases. Within each phase, the customer receives a beta version of the software in order to test if that specific phase lives up to the agreement and customer expectations.
- 6 When the beta version is tested and finalized, the delivery of that specific phase is handed over to the customer, now ready to go live.
- 7 The project is ended when all phases are tested and delivered to the full satisfaction of the customer.

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Contact your local sales representative or send an e-mail to sales@clcbio.com if you would like to learn more about our consulting solutions.

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