

ACCELERATING VIRTUAL HEARTS, REVOLUTIONIZING CARDIAC SCIENCE

ELEM Biotech streamlines cardiac simulations by 40% with Viridien HPC & Cloud Solutions

CUSTOMER

ELEM Biotech creates the fastest and most accurate virtual humans and virtual trials technology for the biomedical industry. Integrating its solutions in the development of new drugs and devices empowers companies to scale their capacity to test in human models, generate scientific evidence when it matters most, and de-risk innovation. ELEM Biotech's human twins, crafted from real patient data, produce critical insights quickly and efficiently to support important decisions that protect patient and business interests. Solutions are cloud-deployed for easy access by pharmaceutical laboratories, medtechs or hospitals.

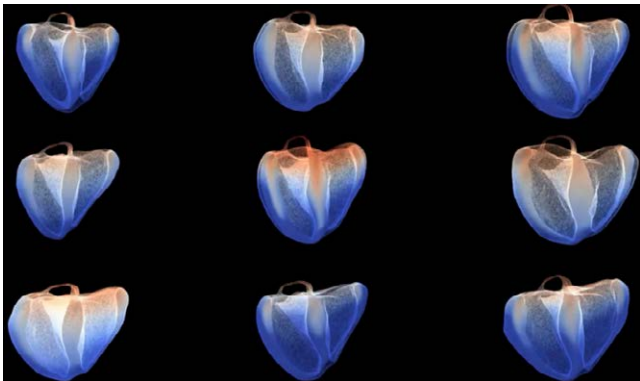
An international organization headquartered in Barcelona and a spin-off from the Barcelona Supercomputing Center, ELEM Biotech develops and tests unique technology to deliver medical-grade accuracy and extreme performance.

CHALLENGE

Simulating the human heart at a cellular level is more than challenging – it's computationally massive. Twenty years ago, simulating a few heartbeats would consume nearly a quarter of an entire supercomputing facility. While technology has improved over the past twenty years, these models can require more than a thousand high-performance computing (HPC) cores to run effectively.

ELEM Biotech still needed a faster, more scalable way to run these simulations. Key hurdles included:

- **Speed & efficiency** – Simulations can require thousands of cores, and ELEM Biotech had to balance performance with cost.
- **Flexibility** – Research and regulations evolve rapidly, which called for a Cloud solution that could scale on demand.
- **Customization** – HPC Cloud solutions needed to be fit-for-purpose given specific short-term ROI metrics.



Virtual populations of human hearts created by ELEM predict the outcome of pharmacological and medical device therapeutics.

SOLUTION

By leveraging Viridien's custom-built cloud infrastructure, ELEM Biotech could run simulations 40% faster than before – unlocking insights at record speed.

RESULTS

- **More power, faster results** – Viridien's high-performance cloud computing accelerates workloads, allowing ELEM Biotech to test more treatments and move research forward quicker.
- **Agility at scale** – With Viridien's global reach, ELEM Biotech can fine-tune computing power for each project, ensuring regulatory compliance and statistical accuracy.
- **Tailored for results** – Custom HPC Cloud platforms configured with ELEM Biotech's objectives in mind maximise return on investment and short-term gains.

With Viridien HPC Cloud powering its research, ELEM Biotech is bringing the future of medicine closer – where treatments are tested virtually before they ever touch a patient. Faster insights mean faster cures – a benefit for everyone.

“Simulations are running significantly more efficiently, allowing us to accelerate results. We have achieved so much in such a short time.” **Mariano Vazquez, CTO, ELEM Biotech**