



## THE BENCH & BEYOND

### 2025: SPRING AFTER WINTER

The San Diego BioMed team had rung in the year with newfound vigor, but then abruptly found themselves navigating Q1 and the beginning of Q2 under unprecedented circumstances.

Following the presidential inauguration, there was an appointment of a new administration for the National Institutes of Health (NIH) - the country's primary agency responsible for conducting and supporting medical research.

As an NIH-funded nonprofit research institute, San Diego BioMed prepared for some standard operational changes. What came next surprised many.

Health and sciences nationwide were immediately stirred by President Trump's major NIH policy changes. Two significant moves directly affected San Diego Biomed; **first** - an ordinance that applied a range of restrictions on the NIH, including the abrupt cancellation of meetings such as grant review panels, a communications pause, a freeze on hiring, and an indefinite ban on travel.

In the line of scientific academic research, time management for experiments is of the essence and the effects of these changes not only caused immediate disruptions, but would predictably generate long ripple effects.

For instance, the discovery of new treatments would slow, opportunities to train the next generation of scientific leaders would shrink, and the nation's science and engineering prowess would be severely compromised.



Unnerved, yet undeterred in the wake of this news, San Diego BioMed quickly adapted by adjusting project timelines and plans of action. Shortly after, however, came the **second** major policy change -

The NIH issued a notice that establishes a standard indirect cost rate of 15% for all NIH grants, replacing the previously negotiated rates that varied by institution - Effective immediately.

For context - The NIH provides federal research grants to universities and research institutions in two separate buckets - direct and indirect costs. Overhead, distinctly, is a subset of indirect but they are not equal. This policy change is purportedly to ensure that a greater portion of NIH funding is efficiently being used for direct scientific research. However, there are overarching misconceptions and general underestimations of how closely indirect costs tie to creating an environment that can sustain scientific research.

Indirect costs, also known as facilities and administrative costs, pay for the infrastructure and backbone of research programs. These costs primarily include expenses that are not directly tied to scientific production and equipment.

Examples of indirect costs range from ...



rent, to student services, to utilities, to facilities and equipment maintenance, to payroll for administrative staff, to compliance programs, to hazardous waste disposal, and much more.

Previously, most universities and nonprofit research institutions, such as San Diego BioMed, had negotiated indirect cost funds with the federal government, with some acquiring as much as 70% or more – a drastic change from 15%.

This indirect cost cap generated extensive confusion as funding from the NIH supports roughly 412,000 jobs and \$92 billion in economic activity, according to a report from United for Medical Research.

To propose and implement this policy would likely mean a disastrous impact on American science and the economy as a result of ...

a loss of future breakthroughs and young people leaving science because of volatility.

In response, action from all corners of the globe moved simultaneously – attorney generals from 22 states immediately sued to block the NIH from enacting the rate change, arguing that the policy would result in "catastrophic financial consequences" and "potentially [jeopardize] people's lives and health." There is a pause on this cap, but litigation continues to this day.

During this time of uncertainty where research programs remain vulnerable, San Diego BioMed has chosen to be innovative in all ways down this stretch.

An eleventh hour enactment of such indirect cost rate changes while being unprepared could be devastating on an institution like ours, and so it would be inopportune to not take preliminary action.

That is why San Diego BioMed has already taken steps to reduce indirect expenses without sacrificing invaluable, multifaceted, highly skilled administrative staff and top-quality scientific research. We have created an extraordinarily out-of-the-box communal environment that involves consolidating and reducing office and lab space to create shared workstations. To maintain efficiency, laboratory staff book time on equipment and specialized experimental rooms through a calendar system and work around each other's schedules. Bench space and equipment is shared. Equipment that is not immediately needed has been placed in storage and will be returned to the institute for specific experiments. Group meetings are held in offices rather than larger meeting rooms. Meetings with all staff are held weekly to ensure effective and accurate dissemination of information and opportunity to ask and address questions. In addition, as part of a longer-term solution, new funding sources are being sought and applications submitted.

We will continue to adapt to new policies for as long as our funding levels allow us to maintain our impactful and innovative research programs and the infrastructure necessary to conduct high level biomedical research for the benefit of improved human health.





## MEET THE SEUMOIS LABORATORY



A new lab has joined the San Diego BioMed family! Warm welcomes and collaborations are already quickly underway as the team is ecstatic with Dr. Gregory Seumois' addition as an Associate Professor, along with the researchers in The Seumois Laboratory.

Professor Seumois outlines his lab's aspirations:

"Our Vision: Decoding Airway Immunity and Transforming Respiratory Health.

Our Mission: At the Seumois Lab, as we like to call the **A<sup>3</sup>SOM** Lab – short for **A**sthma and **A**ero-**A**llergies & **OM**ics Lab –

– we are a dedicated team driven by a passion for advancing research on chronic non-infectious respiratory diseases such as asthma and respiratory allergies. Our mission is to bridge the gap between innovative research and its clinical applications, with a focus on understanding human biology.

We use cutting-edge genomic techniques to analyze the immune cells from clinical samples to uncover the molecular complexities of these diseases.

Our research starts with discoveries in human biology, which we then explore through various preclinical models, to assess their functional and therapeutic potential. Our ultimate aim is to develop therapies that can significantly improve the management of these conditions."

For the Seumois lab – "Collaboration is integral to our success. We have established strong partnerships with research teams across the USA and internationally.

This includes institutions such as UCSD, La Jolla Institute for Immunology, University of Michigan, University of Memphis, University of Ghent and Liege in Belgium, the Universities of Southampton and Liverpool in the UK, and the National Polytechnic Institute in Mexico. These collaborations enrich our research and promote global knowledge exchange."





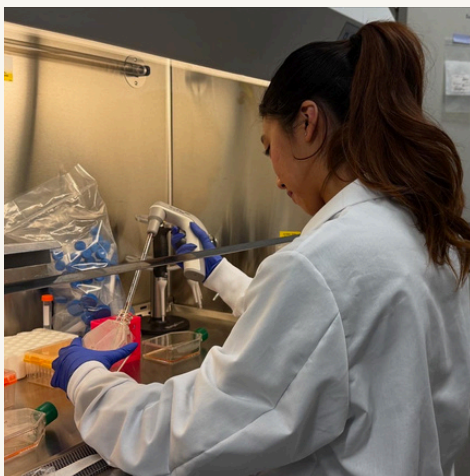
## SAN DIEGO BIOMED YOUTH

### Meet Eugenia

Most of all, just like the rest of San Diego BioMed, Professor Seumois shares the team's passion for championing the youth and wishing to be great guides for scientists of future generations.

Hear statements from The Seumois Laboratory Research Assistants:

Eugenia: "My time at San Diego BioMed and in the Seumois Lab has been incredibly rewarding. Under Dr. Seumois' mentorship, I've had the unique opportunity to gain hands-on experience in both wet and dry lab techniques—learning how to extract RNA, prepare sequencing libraries, and analyze data using bioinformatics tools. This dual training has deepened my appreciation for the synergy between experimental and computational biology, while also expanding my understanding of immunology and genomics. What I value most is the collaborative environment and the chance to contribute to impactful research so early in my academic journey."



### Meet John Wesley

John Wesley: "My name is John Wesley Pabalate, and I am a third-year undergraduate student at the University of California, San Diego majoring in Cognitive Science, and minoring in Data Science. I had the privilege of joining Dr. Seumois' lab at San Diego BioMed through a work-study internship.

During my time in the lab, I received thorough training in RNA sequencing, while gaining exposure to both wet and dry lab techniques. I learned RNA extraction, cell culturing, and sequencing library preparation—developing the precision required for working with biological samples.

Dr. Seumois' mentorship strengthened my understanding of immunology and genomics and encouraged me to approach scientific questions with greater rigor."



## THE DAY-TO-DAY

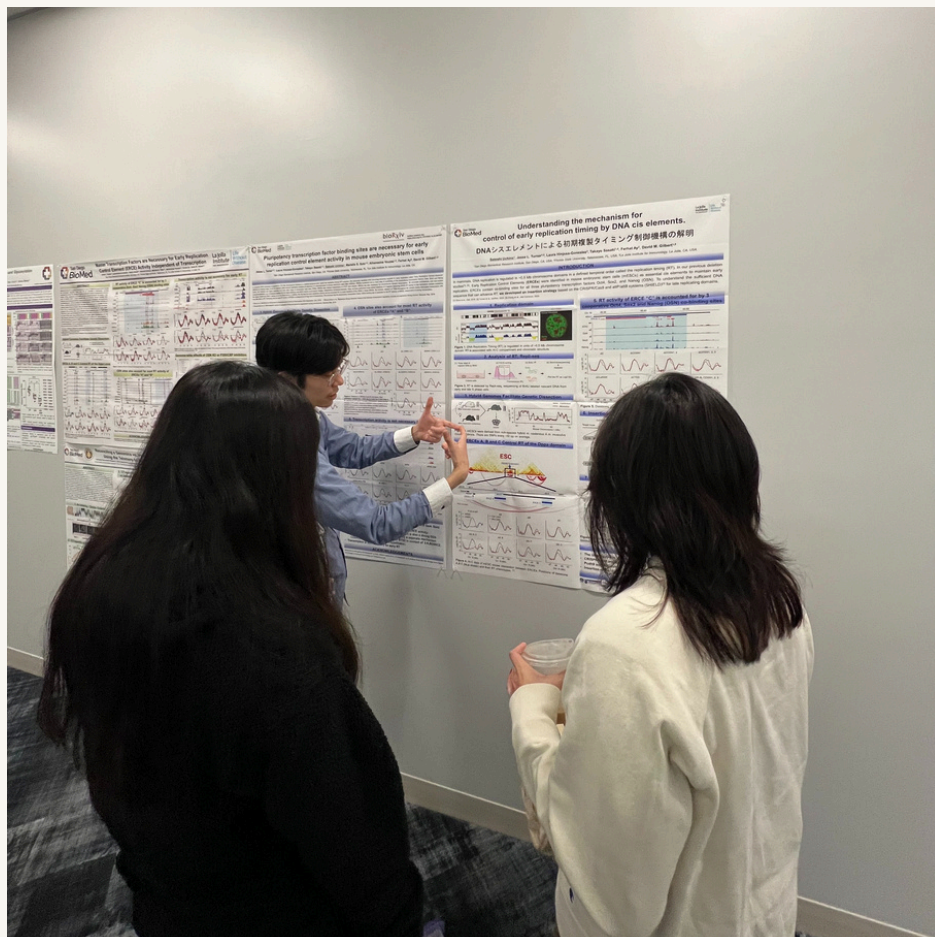
### Perspective



Congratulations to Professor Bruno Conti and his lab, on their most recent publication: 'Promoting health and survival through lowered body temperature.'

Paper publications are a testament to labs' hard work ethic, collaboration, intellectual achievements, technical skill, and commitment to public access of information.

Professor Conti notes that calorie restriction (CR) promotes health span, with the beneficial effects of CR not entirely nor necessarily mediated by diet itself, but by the lowering of body temperature. He discusses how shifting the paradigm from diet to temperature opens new avenues for the study of aging biology and indicates important avenues for future research with translational applications - including temperature management and the development of temperature mimetics.



### Teaching

Beyond collaborative research efforts, casual daily learning takes place at San Diego BioMed because of our staff's eagerness to share and understand each other's work. In the image above, postdoctoral fellow-Satoshi-presents his lab's findings to lab technicians from other labs.

In Satoshi's words, "DNA replication is regulated in regions called chromosome domains where there is a defined temporal order called the replication timing (RT).

In our previous studies, Early Replication Control Elements (ERCEs) were identified in stem cells (mESCs) as essential cis elements to maintain early replication. The ERCEs contain co-binding sites for three pluripotency transcription factors: Oct4, Sox2, and Nanog (OSN). To understand the sufficient DNA sequence that can advance RT, we developed an insertion strategy for late replicating domains based on systems called the CRISPR/Cas9 and attP/attB systems (SHIELD)."





## CIRCLES OF SUPPORT

This April, the team at San Diego BioMed took some time to unwind off the bench and show support for people with Multiple Sclerosis (MS) at a local sponsored walk – WalkMS! WalkMS, hosted by the National Multiple Sclerosis Society, garners sponsors to emphasize a meaningful expression of the support system that is critical to the everyday lives of those with MS.

MS is a neurological disease where the body's immune system mistakenly attacks its own tissues. In MS, immune cells over promote inflammation, damaging the myelin sheath that surrounds and protects nerve fibers. Without myelin, the nerves are unable to efficiently conduct electrical currents that translate into messages for distant parts of the body. Common symptoms of MS are numbness on hands and feet, blurred vision, impaired muscular coordination, severe fatigue, and a large spectrum of neurocognitive disorders.



Not only does San Diego BioMed have aligned goals with WalkMS as evidenced by past partnerships and funding from The National Multiple Sclerosis Society, but also because of our current partnership with The Multiple Sclerosis Medical Research Center (MSMRC).

MSMRC is a center for excellence at San Diego BioMed. Scientists attend regular MSMRC meetings to identify new information related to MS care and research, to present and discuss data from ongoing experiments, and to design the presentation of projects for dissemination to the scientific and community population.

Learn more by visiting - <https://www.msmrc.org/>



We are also happy to announce that we doubled our donation goal to the National Multiple Sclerosis Society, fueling their mission to cure MS.

No one should have to face MS alone!

