

# Manuel Guzman – President, CAS

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We envision a future where data-driven collaboration in Alzheimer’s research leads to faster breakthroughs, supported by AI and quantum computing technologies.

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*Manuel Guzman, President of CAS, a division of the American Chemical Society, outlines the organization’s vital role in scientific knowledge management and its commitment to accelerating breakthroughs in biomedical research. In this interview, Guzman delves into CAS’s strategic partnership with Cleveland Clinic, the impact of AI and quantum computing in Alzheimer’s research, and the challenges of cross-industry data collaboration.*

**Please provide a brief overview of CAS’s mission, activities, and its role within the broader scientific ecosystem, particularly in supporting innovation through data and insights.**

CAS is a division of the American Chemical Society that specializes in scientific knowledge management. Our mission is to improve all lives through the transforming power of science. Our global team of scientists analyzes scientific information published around the world in more than 50 languages, making connections that may otherwise be missed among disparate resources to accelerate discoveries. For over 100 years, CAS has been building the world’s largest and most authoritative human-curated collection of scientific data and specialized technologies to help innovators find insights within that data. Using our unique data, technology, and expertise, CAS partners with leading innovators working across scientific disciplines to help them maximize the value of public and proprietary scientific data to advance key strategies.

As scientific research becomes increasingly digital, and organizations look to new technologies like AI to advance their progress, CAS is a trusted partner that enables organizations to source,

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organize, integrate, search, and analyze scientific data more effectively, a role more critical than ever within the scientific innovation landscape.

**Please elaborate on the scope and strategic significance of the recent partnership between CAS and Cleveland Clinic, particularly in the context of advancing Alzheimer’s research?**

The partnership between CAS and Cleveland Clinic combines the unique assets and expertise of two organizations around the common goal of advancing longitudinal brain health research, with an initial focus on Alzheimer’s disease. Uniting Cleveland Clinic’s advanced quantum computing resources with the vast CAS collection of human-curated scientific data and the diverse expertise of scientists and technologists from both organizations, the team aims to develop and train disease-specific predictive models to accelerate the identification of potential new therapies and preventative strategies.

Enabling collaboration between organizations with different strengths and assets is critical to advancing progress against these extremely complex diseases like Alzheimer’s. We anticipate that this project will serve as a model to encourage even more collaborations, paving the way for progress in other therapeutic areas in the future.

**Why is ensuring secure yet open access to scientific data so essential in accelerating breakthroughs in complex disease areas such as Alzheimer’s?**

Data is the fuel powering modern scientific innovation. Just like in a car, the better quality fuel you have and the more fuel you have, the faster and farther you can drive. Emerging technologies, such as AI, are beginning to show great potential to help scientists accelerate breakthroughs in complex disease areas like Alzheimer’s; however, they will never achieve their full potential without the right data.

The first era of AI applications to these challenges over the last few years has proven that a large volume of data alone is not sufficient to fuel accurate predictive models. Data quality is critically important to success. Thus, foundational knowledge management strategies are becoming increasingly important as researchers focus on sourcing or developing highly curated, fit-for-purpose data sets designed specifically to inform the questions they are targeting.

**What are some of the key challenges in facilitating cross-industry and cross-disciplinary data collaboration, and how can these be effectively addressed?**

Effective data sharing requires organizations to overcome a number of functional and business challenges that often hinder progress. From a functional perspective, challenges like differing data structures and formats, data quality, and even units of measure, can be barriers to data sharing, integration, analysis, and ultimately, collaboration. Beyond these tactical realities of data sharing, business concerns such as agreeing on where the data will be housed, aligning security and privacy standards, and addressing intellectual property concerns are all common issues that hinder collaborations. Addressing these issues requires a proactive content and knowledge management strategy. Choosing the right partner(s) who have aligned objectives and bring complementary assets and capabilities is a key first step to successful collaborations. Establishing common frameworks for data sharing, investing in technologies that enable integration, and aligning business expectations up

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front are other keys to success.

### **How is CAS leveraging AI to support discovery and innovation in biomedical R&D, and what impact do you foresee in the Alzheimer's space specifically?**

CAS is leveraging AI in a number of ways. As the volume of published scientific data continues to grow rapidly, AI is helping us increase the efficiency of our content management and curation processes so that we can get the latest data into researchers' hands as quickly as possible. For example, with AI, we are able to predict if a published journal article contains specific bioactivity data with nearly 90% accuracy, enabling us to automatically route it without the need for human categorization. We are also integrating AI into our search and analytics software solutions for scientists, IP professionals, and R&D leaders to increase workflow efficiency, improve search comprehensiveness, and enhance user experience.

However, the most important and impactful way that CAS is supporting the application of AI to pharma discovery is by leveraging our unique experience in scientific knowledge management to help R&D teams build an effective data strategy and address the foundational data management and integration challenges that are headwinds to their objectives. Partnering with us to ensure they have the right data when and where they need it is empowering scientists to focus their energy on discovery and finding new insights in the data, rather than data management, delivering new research breakthroughs as well as much better return on R&D technology investments.

### **Quantum computing is often cited as a future disruptor in R&D. How does CAS view its potential, and what steps are being taken to explore or integrate this technology?**

Quantum computing is still an emerging technology and is expected to continue evolving rapidly in the coming years. The scientific community is just beginning to scratch the surface of potential applications, but these technologies hold great potential to help us find new insights in large and complex data sets. Through our collaboration with the Cleveland Clinic, the CAS team is looking forward to exploring how the capabilities of the IBM Quantum System One, the world's first quantum computer fully dedicated to healthcare research, when paired with our large, high-quality data collection, can enable new insights and accelerate discovery.

### **How do you envision the future of data-driven collaboration in Alzheimer's research, and what role will CAS play in shaping that future?**

In this increasingly digital era of scientific innovation, making faster progress against extremely complex diseases such as Alzheimer's requires integration of high-quality data, advanced technologies such as AI, and deep subject matter expertise. We call this "the triangle of success". Collaboration among organizations with different strengths and capabilities is imperative to efficiently bring all those elements together to accelerate discovery.

The CAS Content Collection, our decades of expertise in scientific knowledge management, and the diverse capabilities of hundreds of scientists on our team put CAS in a unique position as a key partner and enabler of these critical collaborations and R&D teams more broadly across many therapeutic areas. Given the many ways this work can improve and potentially even extend people's lives, our motivation to ensure a collaborative, data-driven future in scientific innovation is more important now than ever.

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