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IN MEMORIAM

Albert Reynolds (1956–2022): The father of p120

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Albert (Al) B. Reynolds, professor of cancer biology, Vanderbilt School of Medicine, died unexpectedly, and far too soon, at his home in Nashville, TN, at the age of 66 on November 3, 2022. Al earned a bachelor of arts from Kenyon College and a doctor of philosophy (PhD) from University of Virginia. He began his career at St. Jude's Children's Research Hospital in 1989 and then moved his laboratory to Vanderbilt University in 1996, where he remained for the rest of his career. Perhaps the most important thing we can say is how incredibly difficult this is for us to write. As former graduate students, postdocs, and colleagues of Al, our time in his lab was not only where we learned to be scientists, but also where we formed unbreakable friendships, often spending hours in his office having conversations that flowed seamlessly between intense discussions about new results and Al's personal philosophies on mentorship, life, and the like. In many ways, his scientific achievements are overshadowed by his character.

Albert Reynolds. Photo courtesy of M.A. Davis.

But first, the science: Early in his career, working as a fellow in the laboratory of J. Thomas Parsons at The University of Virginia Cancer Center, Al dove courageously into the quest to understand how v-src, the first retroviral oncogene discovered, transformed cells into sarcoma cancers. Knowing Src was a tyrosine-kinase, Al and other members of the Parsons lab cleverly developed one of the first phospho-tyrosine antibodies to identify targets of Src (1). In a single Western blot experiment, Al discovered numerous Src substrates and unknowingly created several fields of research within the rapidly expanding field of molecular biology, and in so doing launched the careers of many cancer biologists who began to study these Src substrates. FAK, cortactin, and p120 catenin, to name a few, were all newly identified Src substrates revealed in a single experiment designed by Al. If there was ever any doubt the impact this one experiment had on science, one just has to look through the list of faculty, even within Al's home institution of Vanderbilt, to see the number of labs whose central focus was on elaborating the role of just one of these Src targets, or the ∼195,000 publications mentioning FAK, 39,000 for p120, and 21,000 for cortactin since their discovery 33 yr ago. Every professor is fortunate to be able to leave a legacy through the people they train in their lab. Few, like Al, have the unbelievable legacy of launching hundreds of careers and impacting lives in so many degrees of separation, far

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beyond quantification. It is safe to say that between his personal scientific contributions and the work of his trainees in and out of academia, countless patients have and will benefit from Al's cancer research career.

Scientific thinking—the approach and philosophy we use for scientific inquiry—can often be traced back to whom we trained with. Like our genetic makeup, our scientific method is an amalgamation of our "scientific parents" and the little bits of our own unique perspective we bring—a little random mutation, as it were. When considering what Al passed on to us, it is worth sitting with Al's discovery of Src substrates to note the "elegant simplicity" of this experiment because it underscores one of many "Al-isms"—half joke, half serious quip—that Al would routinely use whenever the opportunity arose. When presented with a qualitatively clear result, he would revel in it by saying, "If we have to use statistics, we have already lost." This was not an anti-statistics statement but rather, when you spend enough time in Al's lab, you learn that Al-isms, like a Buddhist koan, hold a deeper meaning. Here, we came to know that Al meant when shining light on the dark corners of knowledge, to be patient when finding the right flashlight so that the result is clear and unambiguous. Furthermore, when finding the right experiment or building the right tool (i.e., phospho-tyrosine antibodies), rather than rushing to the latest high throughput meta-analysis, it will always be true that "fast is slow, and slow is fast," yet another Al-ism that forever resonates in the minds of his former lab members. Al used these philosophies to start his own lab where he took ownership over one of his newly discovered Src substrates, p120 catenin ("p120"). Little did he know this decision would earn him the moniker "the father of p120." Al worked his way from p120 through the rest of the cell, connecting this one molecule to a diverse set of roles in regulating cell–cell adhesion, transcriptional regulation, and the actin cytoskeleton. In retrospect, Al unknowingly was making critical contributions to the burgeoning concept of "systems biology," but consistent with his humble personality, was more apt to just do systems biology rather than spend time claiming ownership of the next scientific buzzword. His intellectual curiosity extended to immunotherapy, and he regularly discussed the potential of RNA vaccines for cancer treatment long before their widespread use for COVID-19. Al finished his career at Vanderbilt University Medical Center, retiring in the summer of 2022, where many of his former labmates and close colleagues came together to celebrate the scientist and person. Al was looking forward to the next chapter in his life, and the conversation was as lively as it was when we were all together in person. Al had planned to spend short "scientist expert in residence" visits with some of his former trainees in their independent laboratories, so that he could impart some of his wisdom and knowledge to his "scientific grandchildren." The news of his passing shook all of us to the core, but many of us are grateful for having had the opportunity to speak with or visit him one last time this past summer and fall.

This expansive work in Al's career, however, was only part of the reason he earned the rightful title of "father of p120." The other, often overlooked in science, was because of his generosity. We fondly remember occasions when we, as young graduate students prone to paranoia about being "scooped," would be advised by Al that it is always better to openly share in science: unique reagents, scientific insight, presentations at conferences—all things we in the Reynolds lab openly shared with colleagues, many of whom were direct competitors. Al's belief, almost karmic, was that in the long run, you'll always be more successful by being open rather than secretive. We believe he is proof of that model working, and this is what earned him a reputation as an upstanding citizen of academic science. Indeed, one can't help thinking of Al whenever discussions on the importance of "open science" come up. Furthermore, what is perhaps the hardest thing to textualize about Al, but undoubtedly the most important, is how incredible of a human being he was. Being in Al's lab taught us about humanity and compassion, for example when he hired a cancer survivor as the lab manager, not because she had prior training experience (in fact, she had none), but because she wanted to contribute to the "fight to cure cancer" in any way she could, and Al knew it was the right decision. Being in Al's lab was also about family, as he and his wife, Liz, would open their home to the lab for any reason to come together.

Thus, if you strip away the papers published, the awards given, grants won, fields of research started, students and postdocs trained, Al's legacy would remain far from bare. He will always remain in our hearts, our minds, and his friendship will be so incredibly and deeply missed.

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Reference

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