THE AMD SPACE RACE

For anyone who grew up obsessed with space and dreamed of becoming an astronaut, this has been your year. For the first time since 1972, we sent astronauts to the moon. While they didn't land this time, they did slingshot around the dark side of the moon and return safely—renewing the interest in space exploration that had lain dormant in many of us.

To top off the revived space mania, the movie adaptation of Andy Weir's space thriller novel *Project Hail Mary* hit box offices with a bang, grossing nearly $580 million within the first 5 weeks in theaters. If you haven't read the book or seen the film, we highly recommend them, because they capture not only the sense of awe and adventure that comes with space exploration, but the hard work required to make it happen. The detailed mathematical calculations, careful understanding of scientific formulas, and feats of engineering they depict aren't for everyone, but we bet retina specialists will gravitate toward those parts of the story.

That's because we ourselves are doing our own version of these feats of engineering to develop the novel therapies that are poised to change our treatment paradigms—our own little retina space race. To those of us who have been around long enough, some of the drug delivery systems and novel mechanisms of action we are investigating now could be right out of a science-fiction novel. We could only dream of gene therapy, bioerodible hydrogel implants, and optogenetics 20 years ago, yet we are already awaiting phase 3 data for some of these treatments.

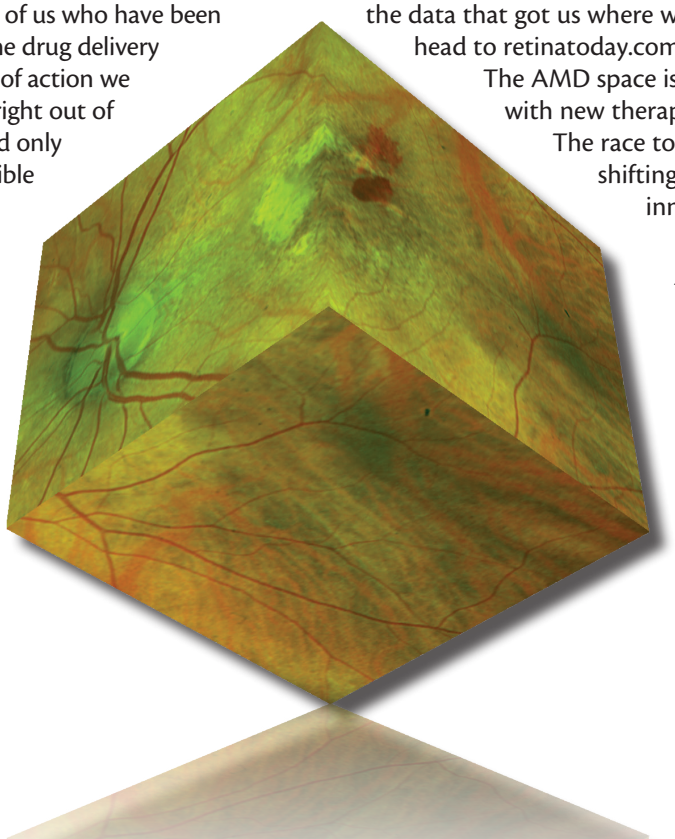
So, while we are all stuck in our injection clinics or worrying over some less-than-ideal data readouts, remember all the monotonous tasks (and failed missions) required to get the space shuttle to and from the moon without a hitch, and take heart: It's all part of the scientific process.

In this issue, we share the hope garnered by our robust and futuristic pipeline, as well as the successes that have already improved our care for patients with wet and dry AMD. To start, we (L.V. and R.L.A) sat down with Carl D. Regillo, MD, and Durga S. Borkar, MD, MMCi, to discuss the many novel therapies under investigation for wet AMD, including tyrosine kinase inhibitors and gene therapy.

With second-generation treatments in our armamentarium and more on the way, the already complex decision tree for AMD is only getting more difficult. Thus, Jennifer Adeghate, MD, PhD, and her team provide an update on step therapy and the various advocacy efforts, while Sean Adrean, MD, and Wesley Han, BS, walk us through the pearls and pitfalls of treating concurrent geographic atrophy (GA) and wet AMD.

Eleonora M. Lad, MD, PhD, and Kelly Donovan, MD, PhD, highlight novel imaging biomarkers that are helping us track progression in GA, and Luis Acaba-Berrocal, MD, and Anton Orlin, MD, provide a how-to for treating intermediate AMD with photobiomodulation (another therapy that sounds like it could have been lifted from science fiction).

To round out our coverage, Dimitra Skondra, MD, PhD, and her team share finding on the influence of diet on long-term AMD outcomes, and researchers at the Doheny Eye Institute have contributed three wonderful reference charts of landmark AMD clinical trials to help ground us in the data that got us where we are (to view those charts, head to retinatoday.com).



The AMD space is evolving at the speed of light with new therapies and delivery approaches. The race to meet patient needs amid the shifting economics of care has driven innovation further than some of us thought possible. But just as Ryan Gosling set out to save humanity with wildly unlikely and increasingly complicated math, science, and engineering, we are equally dedicated to saving patients' vision, one unlikely scientific success at a time. ■

- Allen C. Ho, MD
- Robert L. Avery, MD
- Lejla Vajzovic, MD