

RAINMAKER:
Famous friends have
helped Black raise
nearly \$20 million for
his research team



PHOTOGRAPH BY MAX S. GERBER

Brain Power

**FOR DESPERATE TUMOR PATIENTS, CEDARS-SINAI SURGEON
KEITH BLACK MAY BE THE LAST, BEST HOPE BY LINDA MARSA**

ALL OF KEITH BLACK'S NEW patients are scared. Scared they are going to die and, even worse, scared they are going to live and lose vast pieces of themselves. On an unseasonably warm day in February, Christian Cabal and his wife, Françoise, sit in an exam room at Cedars-Sinai Medical Center awaiting their first meeting with Black. A year ago surgeons

in their hometown of Saint-Étienne, France, removed a malignant growth from Christian's brain. Christian, still ruggedly handsome at 62, is a physician, so he does not kid himself. He feels fine, but he knows the tumors soon will come roaring back. He also knows that people with his highly aggressive form of brain cancer, glioblastoma, rarely live more than two years.

After her husband's diagnosis, Françoise scoured the Internet seeking experimental brain cancer treatments. She found three possibilities: the National Cancer Institute in Bethesda, Maryland, the M.D. Anderson

Cancer Center in Houston, and Black's group at Cedars-Sinai. She fired off messages to each. Only Black responded. "I was amazed," Françoise would recall. "I opened up an e-mail, and it said we had an appointment. Just like that. I thought it would be more difficult."

Black slips into the room, low-key yet self-confident. Tall and lithe, he looks casually elegant in a gray herringbone

sports jacket, dark slacks, and a royal blue shirt that contrasts sharply with his mahogany skin. But the most striking thing about him is his hands; they are delicate, with long, slender fingers that can span nearly two octaves on a piano. Black greets the couple, then stares intently over his wire-rimmed glasses, thinking about what to say. As difficult as it can be, he is always honest so patients understand what they are up against.

"We don't have a cure yet for glioblastoma, but we're making progress," he tells Christian, "and you're a good candidate for the vaccine."

At home in both the research lab and the operating room, Black has a reputation for taking on tough cases that other surgeons won't touch.

Black and his research team have made significant headway in the battle against a disease that is one of medicine's most intractable foes. They have devised a vaccine that prompts the immune system to dispatch assassins—known as killer T cells—that hunt renegade tumors. They are also testing neural stem cell therapies that mop up the stray cancer cells that are missed by radiation or surgery and that can seed even deadlier tumors. "When combined in a one-two punch with chemotherapy, the vaccine seems to slow the cancer's progress," Black says. Forty-two percent of participants in the early tests have lived for two years after being given the vaccine, compared with 8 percent of those who did not receive treatment. A handful of patients have survived longer.

While a couple of years may not seem long, they can be an eternity to someone whose probable survival is measured in weeks and months. Christian is game. Black, however, says there is a catch. The treatment is experimental, so Christian won't be able to enroll in the clinical trials until his cancer returns.

Black doesn't like letting anyone leave empty-handed. "Send me your MRI scans," he says. "Maybe there's something else we can do in the meantime. And call me. Anytime."

Christian thanks Black, and Françoise bursts into tears. "For the first time in eight months," she says later, "I felt comforted."

This is why patients come from all over the world to Black's offices overlooking the Beverly Center. Some face certain death, while others fear becoming severely disabled or being robbed of their personalities, memories, and the traits that make them who they are. For them, Black stands at the pinnacle of two fiercely competitive worlds: brain surgery and basic research.

"He's easily in the top 1 percent of American neurosurgeons both intellectually and in terms of his clinical skills," says Dr. Benjamin Carson, director of pediatric neurosurgery at Johns Hopkins University in Baltimore. "And of the neurosurgeons who also do brain tumor research, I'd put him in the top ten in the world."

Consistently voted one of America's best doctors by his peers, Black was featured on a 1997 *Time* magazine cover devoted to heroes of medicine and has been the subject of television documentaries. He discovered that bradykinin, a naturally occurring chemical, opens up the blood-brain barrier—the tightly knit network of capillaries that prevents toxic chemicals in the bloodstream from seeping into the brain. This pioneering research enabled chemotherapy drugs to be delivered directly to brain tumors. For his work Black received the prestigious Jacob Javits Award from the National Institutes of Health in 2000.

Black came to Cedars-Sinai nine years ago, after helping to build a nationally recognized brain tumor program at UCLA. His arrival was considered a coup. From virtually a standing start—about 300 brain surgeries were performed at Cedars-Sinai the year he joined the staff, compared with more than 1,300 in 2005—he has catapulted the hospital's neurosurgery department to the front ranks nationally. It's a "phenomenal achievement," says Carson, because the program has surged past three-quarters of similar programs at university teaching hospitals.

Proudest of what he calls his "mini Manhattan Project," Black says the research hot-house he created includes more than two

dozen scientists recruited from institutions like Stanford, Harvard, and Columbia. The team is on the verge of crucial breakthroughs. Besides the vaccine and stem cell therapy, it is studying optical fibers that use light to diagnose cancer and that may eliminate the need for invasive biopsies, microwave technology that could vaporize tumors, and more efficient methods of smuggling lifesaving drugs past the blood-brain barrier. These approaches are designed to enter the brain, as Black puts it, "almost like a thief" and leave without a trace, in hopes of rendering surgery, which can cause serious collateral damage, obsolete.

Black supports his \$3-million-a-year scientific juggernaut by generating almost \$1.5 million a year in federal grants. He also has collected nearly \$20 million in private gifts in the past decade. Philanthropist Maxine Dunitz donated \$5 million in seed money for the neurosurgical institute that bears her name after being strategically seated next to Black at a dinner party. Other major benefactors include Denzel and Pauletta Washington and Dale Mason-Cochran, the widow of attorney Johnnie L. Cochran Jr., who died of a brain tumor last year.

Family friends of Black and his wife, Dr. Carol Bennett, a urology professor at UCLA's Geffen School of Medicine, started the Brain Trust, a group of businesswomen who aren't bashful about tapping their extensive network of movers and shakers in the African American entertainment and business communities. In six years the Brain Trust has raised \$7 million from charitable events, small dinner parties with the Blacks, and donations.

"When I heard about Dr. Black's research, I wanted to do whatever it takes to get the job done," says Keisha Whitaker, the wife of actor-director Forest Whitaker. She joined the Brain Trust board after Black saved her husband's grandmother. "Her doctors in Texas told her she wasn't going to live out the year, but Dr. Black successfully removed her tumor. That was seven years ago, and she's just fine."

"A number of significant gifts have come from grateful patients," says Arthur Ochoa, vice president for community relations at Cedars-Sinai. "Keith is probably our most visible and successful physician fund-raiser."

Outside the office Black has earned the tongue-in-cheek sobriquet “Indiana Black” by climbing Mount Kilimanjaro, tramping around in African jungles, skydiving, and piloting a plane in heavy rainstorms. Recently he’s been limiting his adventures to sailing his 47-foot boat with his family—his wife, his 18-year-old daughter, Teal, and his 15-year-old son, Keith—and puttering around his modern hilltop home in Bel-Air.

He still has no qualms, however, about taking risks. Black’s older brother, Robert Black Jr., an Ohio corporate lawyer turned venture capitalist, recalls a recent Caribbean trip during which the two men were surrounded by huge fish when they went scuba diving one night: “It was pitch-black, and the only light was from our flashlights.... I consider myself an alpha male, but I was nervous. Not Keith. He just dove right into the school, seeing if he could grab one and ride it. My brother is fearless. He sails that way, he dives that way, and he lives that way.”

WE’RE SHORT A SURGEON upstairs, so we’ve got to get you guys up to speed fast,” Black tells more than a hundred Latino and African American students in the Cedars-Sinai auditorium. The group, hand-picked from junior highs around the Los Angeles Unified School District, is part of Brainworks, an eight-year-old program the surgeon started to introduce gifted underprivileged youngsters to medicine. Standing at the podium, Black is wearing blue scrubs, a white lab coat, and suede running shoes and is sipping his ever-present cup of coffee. On the projection screen behind him, he flashes a photograph of a roofer whose eye was impaled in a nail-gun accident. The kids gasp.

“Should we do an MRI?” asks Black.

Three dozen hands shoot up.

“It’s expensive...”

Half the hands go down.

“...but worth it.”

The hands go back up.

Black clicks on the MRI, which shows that the four-inch nail has penetrated the man’s skull and is pushing on an artery.

“Should we just pull it out?” Black teases.

Another flurry of hands.

“But that could cause serious bleeding.”

More hands go up. “Pick me, pick me” groans emanate from every corner of the room.

Black walks the group through the same problem solving he carries out with his colleagues. After a few more cases, students rotate through a neurological version of *Jeopardy!* and interactive stations where they learn to use a stethoscope, dissect a sheep’s brain, and manipulate surgical instruments while looking through a high-powered microscope. Outside the auditorium youngsters don surgical gowns and masks for photographs with Black, who patiently poses for more than an hour.

Brainworks is one of several programs through which Black hopes to nurture the next generation of neurosurgeons. He sponsors university scholarships for disad-

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vantaged students and offers undergraduate, graduate, and medical students paid summer lab internships subsidized by the Washingtons. Last July Cedars-Sinai became one of a handful of institutions in the past decade to win approval to train neurosurgery residents. “It’s quite an accomplishment for Keith because the evaluation process is very rigorous,” says Dr. Donald Becker, Black’s former boss at UCLA and now an associate medical school dean there.

“I can’t mentor all these kids, but at least we can expose them to careers in medicine and stimulate a love of science,” says Black, sitting at the conference table in his tidy window-lined office. One wall is crammed with framed magazine covers and awards, and along the sill are photos of the surgeon with his family, two U.S. presidents, and cultural icons known by their first name—Nelson, Oprah, Sidney.

Black’s interest in education may come from his parents. His mother taught first grade, and his father was the first African American principal in Alabama to desegregate his teaching staff while George Wallace was governor. Descended from Jamaicans who emigrated before the American Revolution, Black was born in Tuskegee and raised in Auburn. At the family dinner table Plato and Locke were topics of discussion. Robert Black Sr. says his son’s gifts were evident early. Once he came home from work to find seven-year-old Keith dissecting a bird, guided by illustrations in his brother’s high school biology textbook. The boy moved on to dismembering frogs and cows’ hearts that his father picked up at a slaughterhouse. By the time Keith was in high school, the Blacks lived in Shaker Heights, Ohio, an upscale Cleveland suburb. He knocked on doors at nearby Case Western Reserve University until he found someone willing to let an African American high school student clean beakers. Soon he was suturing lab animals and performing surgeries on dogs, including valve replacements and heart and kidney transplants.

At 16 Black made his first discovery: When patients are placed on heart-lung bypass machines, some red blood cells are damaged. This observation led to a scientific paper, which he presented at a cardiology conference, and to a semifinalist berth in the Westinghouse Science Talent Search. Black whizzed through a program at the University of Michigan that compressed college and medical school into six years and earned his M.D. at 23. After completing his surgical residency at the University of Michigan Medical Center, Black arrived at UCLA, where he established himself as a virtuoso with a scalpel. When he was ready to command his own ship, Cedars-Sinai did everything it could to woo him.

Even with his success, Black remembers two incidents from his student days that gave him a taste of the entrenched racism and elitism in the upper echelons of medicine. After he realized he wanted to be a brain surgeon, he met with the medical center’s chief neurosurgeon. Their encounter was chilly. “He asked me, ‘What makes you think you can be a neurosurgeon?’” Black recalls. “‘You have to think on your feet.’ The implication was, I wasn’t smart enough to do neuroscience.”

Things came to a head when Black made a presentation about an ulcerative colitis patient before the chief resident, with whom he had already locked horns. “I knew this guy was going to be gunning for me,” Black says, “so I set little traps for him. Every time he tried to cut me down, I was ready with a scientific paper that backed up what I was saying. By the time I got done, he felt this small.” Black holds his thumb and index finger about an inch apart and flashes a boyish grin. “After that, the word got out and no one messed with me.”

MORE THAN A DOZEN DOCTORS told Tasha Noriega the same thing: Her seven-year-old son, Jonathan, had an inoperable brain tumor wrapped around his optic nerve that would kill him by inches. Based on a review of the boy’s MRI scans, Black wasn’t encouraging, either. Still, he wanted to biopsy the lemon-size growth.

After the one-hour procedure stretched to two, three, and then four hours, Noriega received word that the surgery was going well. When Black emerged seven hours after the operation began, Noriega couldn’t believe the news. Black had found a path-

way to the tumor and removed 98 percent of it. Jonathan lost the sight in his left eye but suffered no other residual effects. Today the 15-year-old Glendale honor student is an all-star baseball player. “It was a miracle,” says Noriega.

Black’s father recalls coming home from work to find his seven-year-old son dissecting a bird, guided by the illustrations in his brother’s high school biology textbook.

Black has a reputation of being a surgeon of last resort because of his skills and his willingness to handle cases others won’t touch. Only a handful, perhaps 2 percent, of the nation’s 5,000 neurosurgeons take on the notoriously tricky job of removing tumors. (Most operate on the spine or patch

blood vessels ruptured by strokes or aneurysms.) Not only can a minor slip wreak havoc, but brain tissue is gelatinous, which makes surgery analogous to searching for a pea in a bowl of Jell-O. Other brain tumor specialists average about a hundred operations a year. He does about 250.

While he bears his responsibilities with equanimity, Black is hardly nonchalant. “The person under the knife could be my mother, my father, or my sister,” he says. His unflappable temperament also helps him survive a weekly average of five operations and duties as a lab chief that include supervising five research groups and nine neurosurgeons.

Black says he loves being in the operating room. “It’s not work to me. I find brain surgery very relaxing.” When he is operating, he says, he is in a “zone,” with everything focused on the patient. “I’m visualizing four, five, even six steps ahead, and if the whole team is in that same zone, I don’t have to say a word. It’s the same with research. I can visualize where it needs to go. That’s why I always tell students, ‘Find something you love to do. Then you don’t ever have to work a day in your life.’”