OMRF

2008 Annual Report

2008

Head to Toe

Oklahoma Medical Research Foundation

Head. Neck. Torso. Two arms. Two legs. Simple enough?

Okay, let's try a slightly different formulation: One hundred trillion cells.

And that, in a nutshell, captures the paradox that is the human body, something at once elegantly straightforward and staggeringly complex.

When Leonardo da Vinci sketched his Vitruvian man in 1487, physicians believed that the body was composed of four humors: black bile, yellow bile, blood and phlegm. Sickness, they theorized, occurred due to an imbalance in the humors. Thus, when a patient fell ill, the physician would prescribe a regimen of therapy designed to restore the equilibrium.

Five hundred twenty-one years later, da Vinci's drawing still stands as the model of the human form. Its observations about ideal human proportions (the armspan equals the height, the distance from the hairline to the eyebrows is one-third of the length of the face) have largely withstood the test of time. Meanwhile, you'd be hard-pressed to find a modern physician who treats feverish patients with blood-letting and purging.

Thanks to advances in medical research, we now know that the body of an average adult contains about 6.7×10^{27} atoms and is composed of 60 different chemical elements. And that non-steroidal anti-inflammatories are more likely to control a fever than a good leeching.

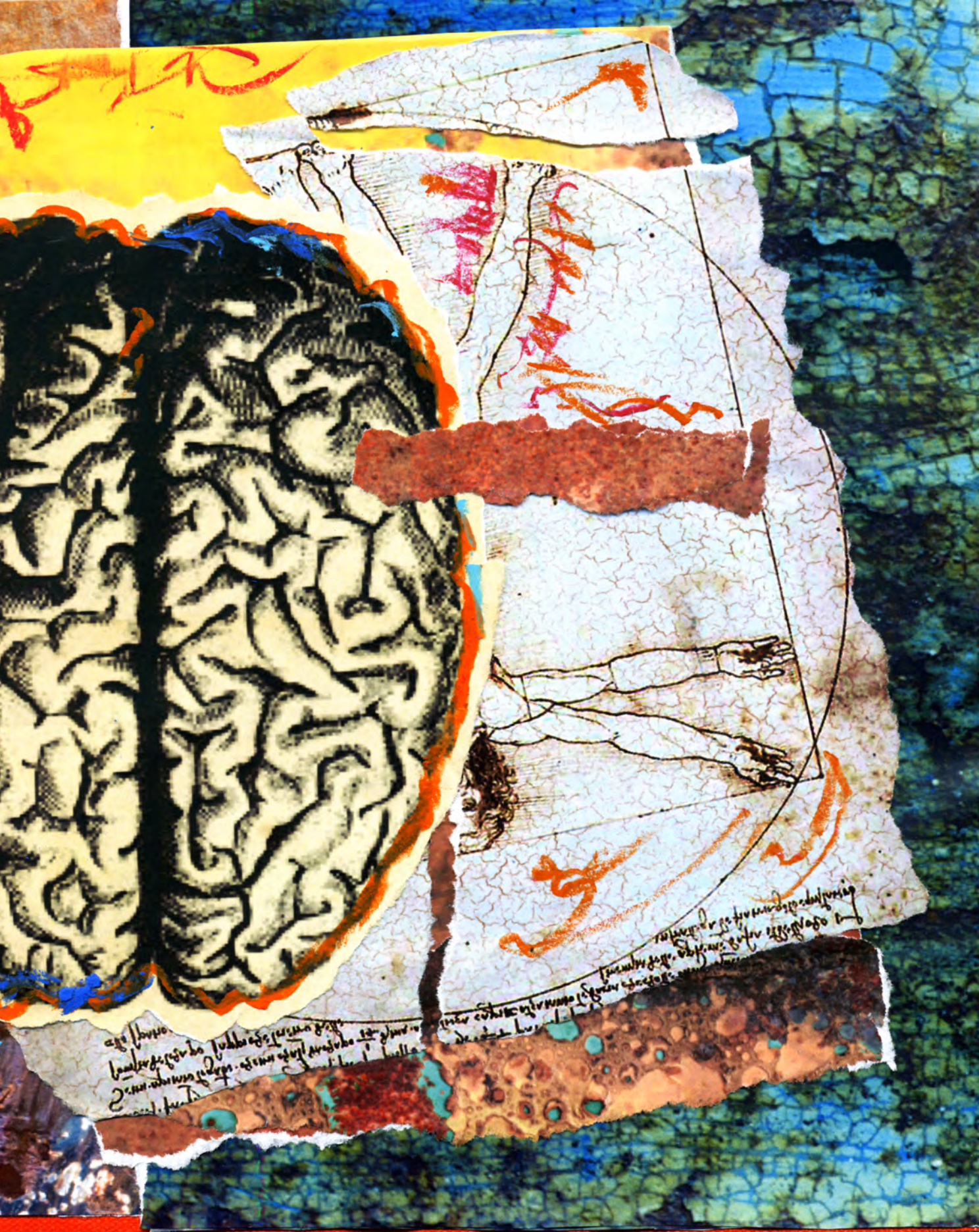
Still, even today, what we understand about the human body is dwarfed by what we still haven't figured out.

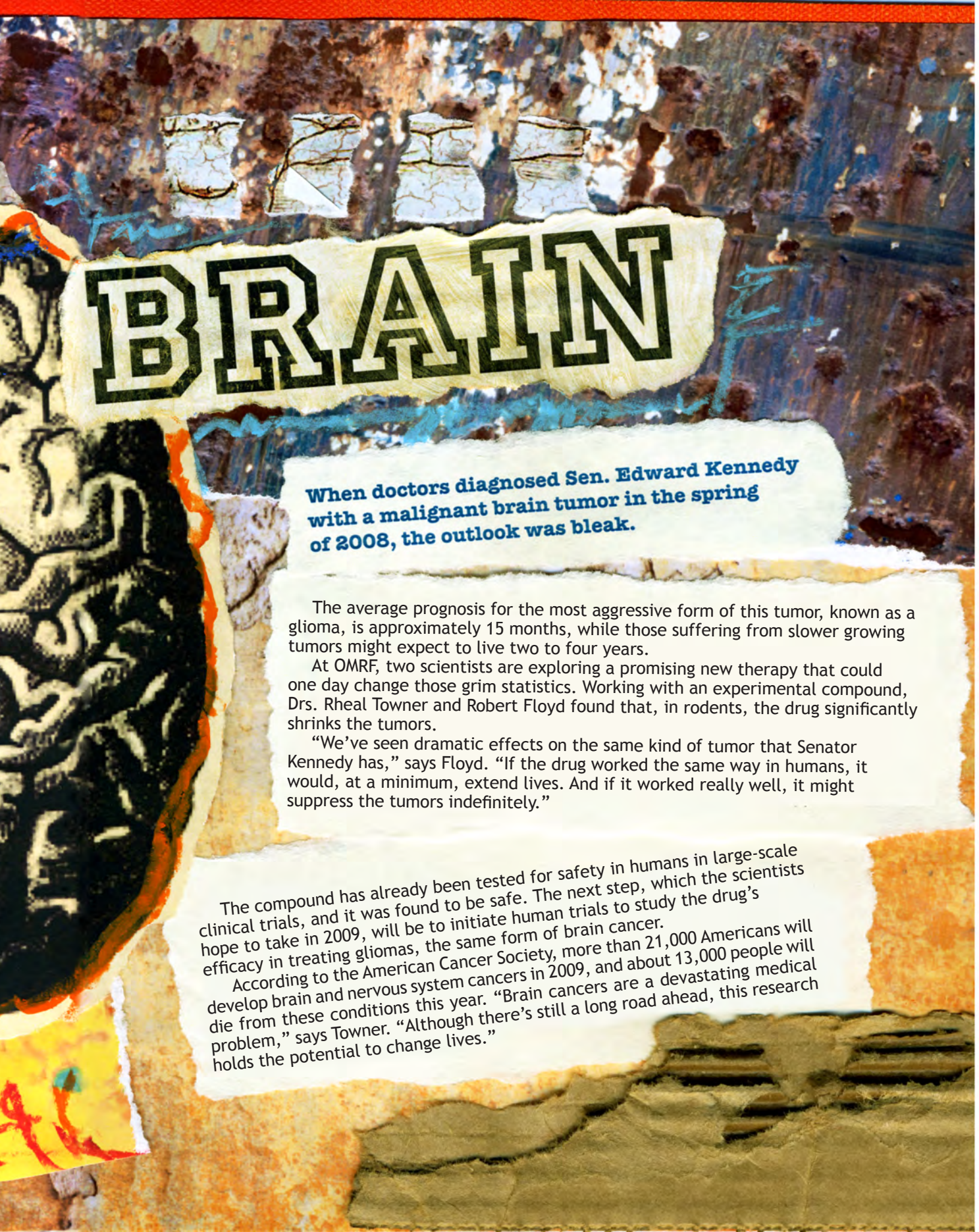
At the Oklahoma Medical Research Foundation, we work each day to unlock those mysteries. In these pages, you'll learn about some of the remarkable progress we made in 2008.

At OMRF, scientists employ technology—DNA sequencing, cell sorting, nuclear magnetic resonance spectroscopy—that would boggle the mind of a 15th-century physician. But our mission remains one with his: helping people live longer, healthier lives.

Stephen M. Prescott

Stephen M. Prescott, M.D.
President





BRAIN

When doctors diagnosed Sen. Edward Kennedy with a malignant brain tumor in the spring of 2008, the outlook was bleak.

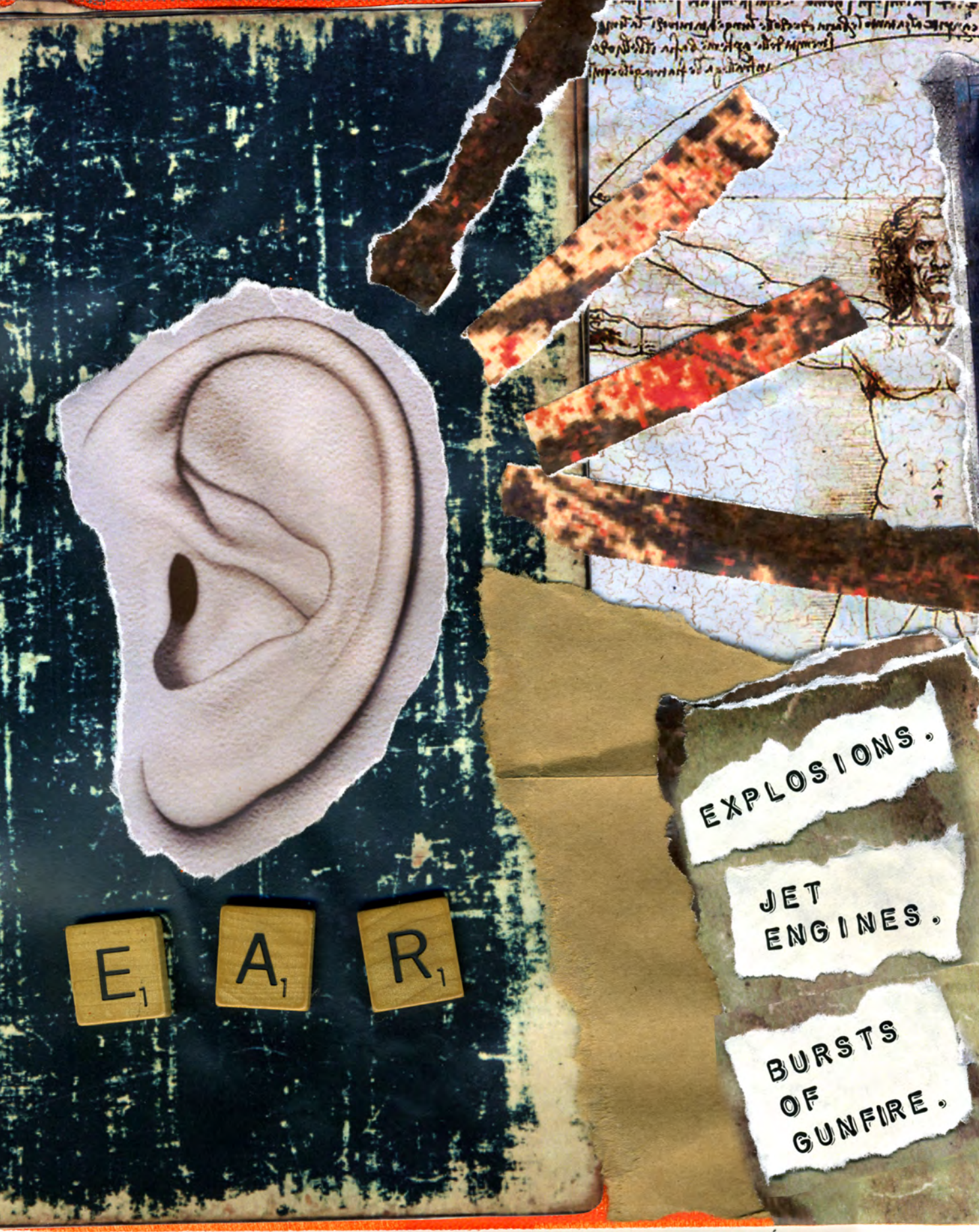
The average prognosis for the most aggressive form of this tumor, known as a glioma, is approximately 15 months, while those suffering from slower growing tumors might expect to live two to four years.

At OMRF, two scientists are exploring a promising new therapy that could one day change those grim statistics. Working with an experimental compound, Drs. Rheal Towner and Robert Floyd found that, in rodents, the drug significantly shrinks the tumors.

"We've seen dramatic effects on the same kind of tumor that Senator Kennedy has," says Floyd. "If the drug worked the same way in humans, it would, at a minimum, extend lives. And if it worked really well, it might suppress the tumors indefinitely."

The compound has already been tested for safety in humans in large-scale clinical trials, and it was found to be safe. The next step, which the scientists hope to take in 2009, will be to initiate human trials to study the drug's efficacy in treating gliomas, the same form of brain cancer.

According to the American Cancer Society, more than 21,000 Americans will develop brain and nervous system cancers in 2009, and about 13,000 people will die from these conditions this year. "Brain cancers are a devastating medical problem," says Towner. "Although there's still a long road ahead, this research holds the potential to change lives."


E1 A1 R1
EXPLOSIONS.
JET ENGINES.
BURSTS OF GUNFIRE.

IN TODAY'S MILITARY, SOLDIERS' EARS ARE UNDER CONSTANT ATTACK. Even with external hearing protection, the sounds of warfare can damage the sensitive inner ear, or cochlea, and severely reduce hearing.

But a new drug combination, developed through a collaboration between OMRF and the Hough Ear Institute, has shown promise in reducing hearing loss. The treatment could have both military and civilian applications.

OMRF's Dr. Robert Floyd, working with Hough CEO Dr. Richard Kopke, found that a combination of two compounds—4-OHPBN nitrone and the drug n-acetyl-cysteine—could stop damage to the inner ear caused by acute acoustic trauma.

"This is a very exciting finding," says Floyd. "The research is still at a pre-clinical stage, but we're hopeful that we soon can begin testing in humans."

Without the medication, prolonged exposure to loud noise can damage and kill hair cells that register sound, causing hearing loss. But in laboratory animals, the hearing loss was almost completely prevented if the drug combination was given within four hours of exposure to noise levels that would otherwise cause acoustic trauma. Significant decreases were also seen if the combination was administered within 24 hours of exposure.

"If this therapy ultimately proves effective," says Floyd, "it could also have many civilian applications, including combating age-related hearing loss."

HEARING LOSS IS THE SECOND MOST COMMON TYPE OF DISABILITY AMONG VETERANS, ACCOUNTING FOR MORE THAN 75,000 CASES. IT IS ALSO THE MOST COMMON INJURY FOR WHICH PEOPLE ARE EVACUATED FROM A WAR ZONE.


HEART

Finding new recipes for heart health

A 2008 study by scientists at OMRF and Penn State University found that eating modest amounts of pistachios helped decrease cellular inflammation, cholesterol levels and risk of heart disease. The findings appeared in *The American Journal of Clinical Nutrition*.

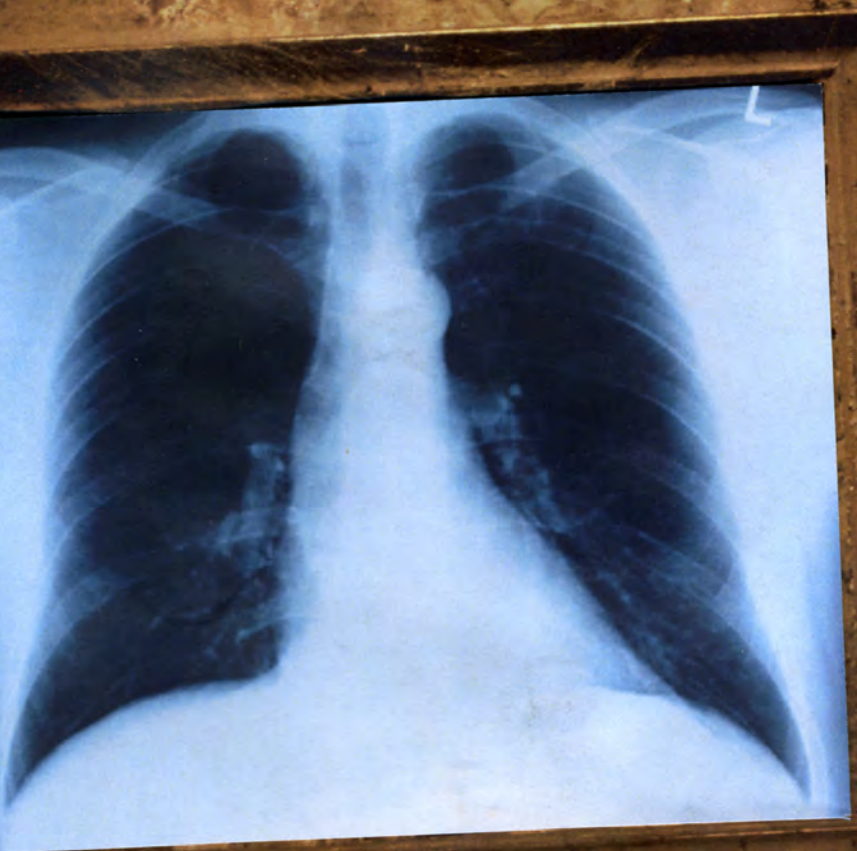
With OMRF's Dr. Petar Alaupovic performing lipid measurements for the study, the researchers found that daily intake—one to two handfuls—of pistachios reduced risk for cardiovascular disease by significantly reducing levels of low density lipoprotein (LDL or "bad") cholesterol.

The researchers studied 28 men and women whose average bad cholesterol level was "borderline high." They ate a diet rich in cheese, oil and butter before they switched to low-fat diets. After the switch, they incorporated pistachios into their meals and found that bad cholesterol levels dropped by 12 percent when two daily servings of pistachios were eaten. Good cholesterol levels did not change.

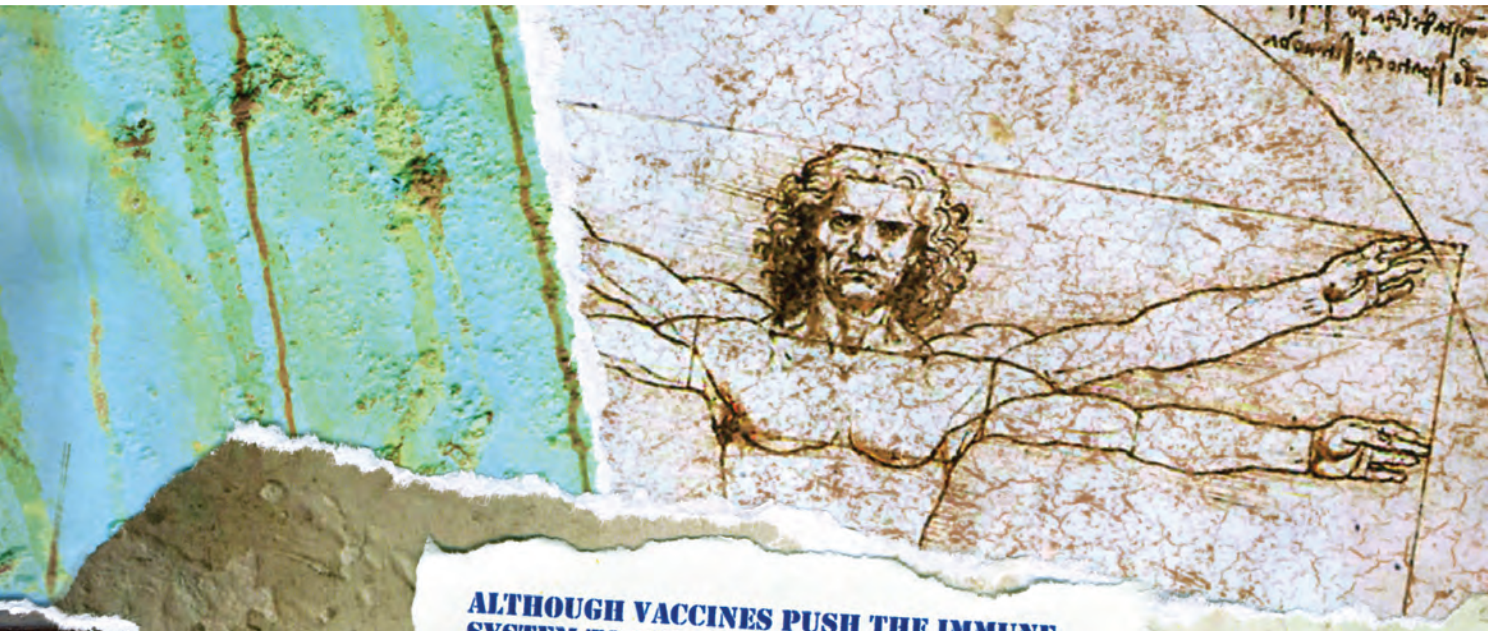
"It appears from this study that nuts in general, and pistachios in this case, help bad cholesterol," Alaupovic says. "So they're not just pleasant to eat, but they're also beneficial for your health."

Just because they taste good doesn't mean they're bad for you.

LUNGS



IN THE FIGHT AGAINST INFECTION, THE HUMAN IMMUNE SYSTEM ISN'T READY FOR A WAR.



ALTHOUGH VACCINES PUSH THE IMMUNE SYSTEM TO CREATE DEFENSES AGAINST ILLNESS, THEY TAKE TIME TO WORK.

But a new process developed by scientists at OMRF stands to revolutionize the process, creating the potential to quickly and effectively create new treatments for influenza and a variety of other communicable diseases that strike the **LUNGS**.

OMRF scientists unveiled their discovery in a 2008 paper in the journal *Nature*. The new process develops a "smart bomb" for the immune system, fighting infection without doing any harm to the body. While the research is aimed at combating influenza, it can be used to create treatments for any condition—such as anthrax or pneumococcal pneumonia—for which there is already a vaccine.

"Vaccines can activate the immune system, but they need time to take effect, and many offer less than 100 percent protection and carry risks of side effects," says OMRF President Stephen Prescott. "With further research and testing, this new method might allow a nurse going into the center of an outbreak to receive a shot to keep her safe from infection. Soldiers in the field could keep a shot of anti-anthrax in their packs in case of a biological attack."

"WE NOW HAVE AN OUTSTANDING OPPORTUNITY TO CREATE TREATMENTS FOR A HOST OF DISEASES," SAYS DR. JUDITH JAMES, WHO IS LEADING EFFORTS AT OMRF TO DEVELOP DISEASE-FIGHTING THERAPEUTICS. "THIS DISCOVERY HAS GREAT CLINICAL POTENTIAL."


JO

INTS

{ LUPUS is a devastating illness that affects as many as 2 million Americans and 15 million worldwide. }

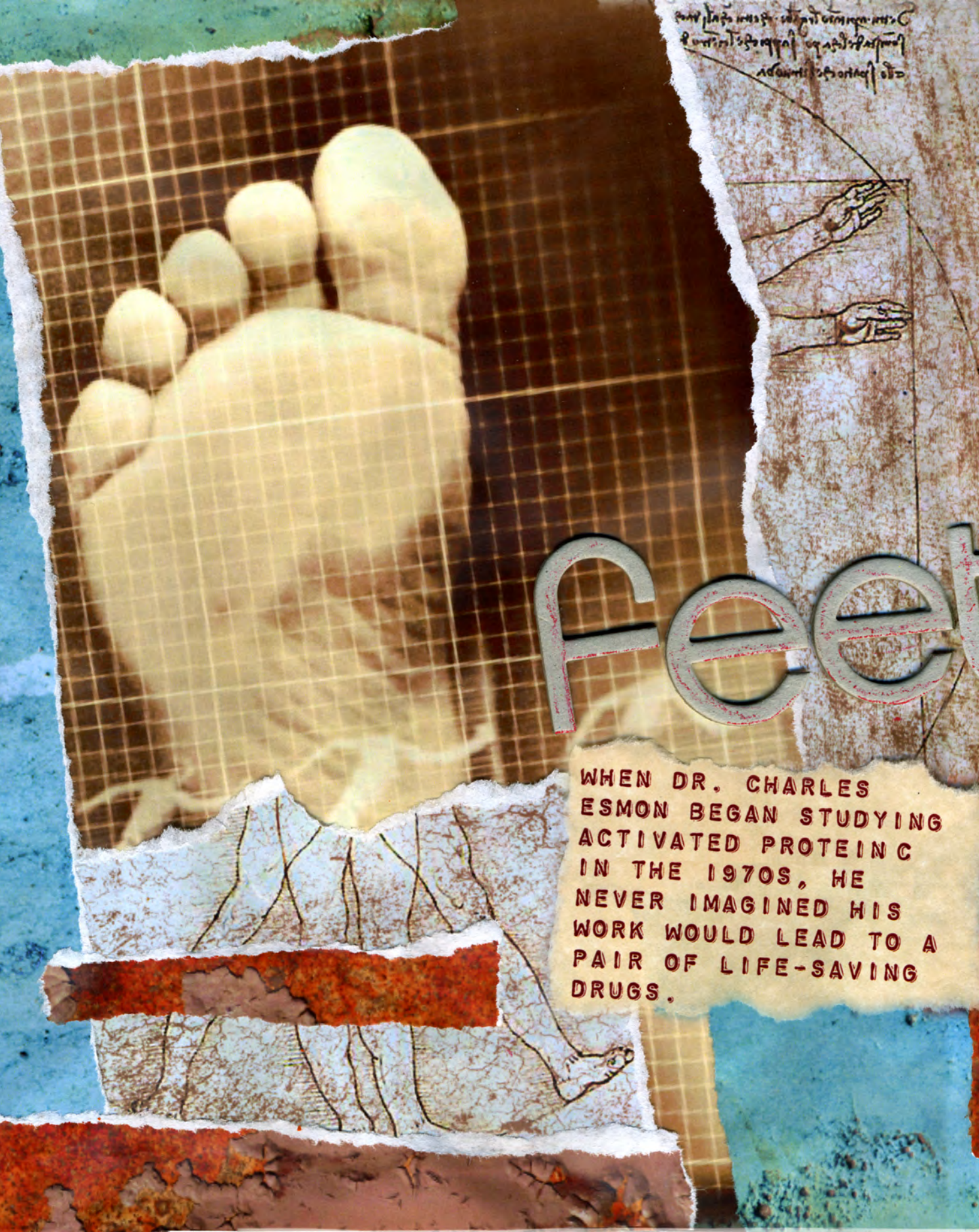
For nearly everyone who suffers from lupus, each day brings a constant struggle with joint pain, stiffness and arthritis.

With mis-wired immune systems, those with lupus are subject to constant attacks on the joints in their hands, wrists and feet. Everyday tasks as simple as buttoning a shirt or chopping vegetables become excruciating. As the disease progresses, the attacks can also extend to the shoulders, knees and ankles. "Too often, living with lupus means living with chronic pain," says Dr. John Harley, who chairs OMRF's Arthritis and Immunology Research Program.

In 2008, Harley and his OMRF colleagues made major strides toward unmasking the genetic roots of lupus. In a trio of watershed studies in the journal *Nature Genetics*, Harley and Drs. Swapan Nath, Patrick Gaffney and Kathy Moser identified 14 genes associated with lupus. Those genes included four previously thought unconnected to the disease and a region once believed to be "junk DNA," a piece of genetic material without any known function.

"As clinical investigators, our goal is to reduce the burden of suffering caused by this disease," says Harley. "These new findings promise to transform our understanding of lupus and to accelerate the day when safe and effective therapies are available."

* The findings represent the culmination of a massive research effort spearheaded by OMRF; the project involved 7,000 research volunteers and 150 scientists and staff at more than a dozen institutions across the U.S. and Europe.


feet
WHEN DR. CHARLES ESMON BEGAN STUDYING ACTIVATED PROTEIN C IN THE 1970S, HE NEVER IMAGINED HIS WORK WOULD LEAD TO A PAIR OF LIFE-SAVING DRUGS.

"Back then, we didn't even know what activated protein C did in the body," says the OMRF researcher. "Our goal was to figure it out."

Figure it out he did. Indeed, Esmon's research on the naturally occurring protein helped create two FDA-approved drugs: one for children suffering from life-threatening protein C deficiencies and another for a blood infection that kills more than 200,000 Americans each year.

And now, working with collaborators around the globe, Esmon is exploring a host of new disease applications for activated protein C.

ONE OF THE DISEASES IN ESMON'S CROSSHAIRS IS **DIABETES**, WHICH AFFECTS AN ESTIMATED 23 MILLION AMERICANS AND IS THE LEADING CAUSE OF FOOT AND LOWER-LIMB AMPUTATIONS IN THE U.S.

"What we found with sepsis is that activated protein C was protective in situations where you had inflammation, vascular injury and organ damage as part of the disease process," says Esmon. "So now we're looking at conditions like diabetes, where blocking inflammatory response and coagulation and protecting organs could be beneficial."

Promising results for the prevention of kidney damage in diabetic mice were published in 2008 in the journal *Nature Medicine*. "If activated protein C has broader implications for people suffering from diabetes and other illnesses," says Esmon, "that would be wonderful."

WONDERFUL.

DONOR AND FINANCIAL INFORMATION

HONOR ROLL

Between July 1, 2007, and June 30, 2008, more than 8,000 individuals, corporations, foundations and organizations made gifts to OMRF. Each one of those donations made a difference. In this Honor Roll, we have recognized gifts of $500 and above. Pledged amounts are listed in full the year they are made; subsequent payments on those pledges will not be listed in future annual reports.

$5,000,000 and above

Samuel Roberts Noble Foundation Inc.
The J.A. and Leta Chapman Trusts

$500,000 - $4,999,999

Aubrey and Katie McClendon
Inasmuch Foundation
Presbyterian Health Foundation
The Rainbolt Family

$100,000 - $499,999

Ann Simmons Alspaugh
Anonymous
Anonymous
Drs. Charles and Naomi Esmon
Wilma Davis-McElmurry Trust
Estate of Clifford and Mattie Hansen
Estate of Evelyn C. Harrington
William Randolph Hearst Foundation
Hocker Foundation
Stephen and Susan Prescott
Charles W. Selby Trust

$50,000 - $99,999

Anonymous
Blue Cross and Blue Shield of Oklahoma
Clyde R. Evans Charitable Trust
Dick and Malinda Berry Fischer
Dale Matherly/Matherly Mechanical Contractors Inc.
The Billy Jack Thomas Trust
United Way of Central Oklahoma

$25,000 - $49,999

Estate of Lydia A. Bunnell
Estate of Richard Davis Flowers
Ken and Mary Ann Fergeson
Grand Chapter of the Order of the Eastern Star
Mr. and Mrs. Emmett Lewis Harding
Richard K. and Ruth S. Lane Memorial Trust
Estate of Olivia Mohney
OCCF OMRF Fleming Scholarship Fund
Estate of Ethelyn A. Trice
Estate of Evelyn Woodruff

$10,000 - $24,999

Adam B. Cohen
Estate of Marie G. Colleoni
Mr. Frans Hammons
Mildred A. Kienlen Trust
Jessie Dearing Kinley Testamentary Trust
Mr. Arthur S. Liss
Estate of Elsie Marlatt
Dr. Julia L. McHale
Mr. Sheppard F. Miers Jr.
Mrs. Dimple C. Mobbs
Chip and Suzy Morgan
OCCF G. Ed Hudgins Family Fund
OCCF General Research
Parkinson Foundation of the Heartland
Glenn W. Peel Foundation
Steve and Susan Raybourn
James and Ruth Trowbridge
W. C. Payne Foundation
Russell and Penny Voss

$5,000 - $9,999

Bethany Public Schools
Mr. and Mrs. G. T. Blankenship
Harry and Louise Brown Foundation
Mr. and Mrs. Barney U. Brown
Hiram and Janice Champlin
Mr. Nance G. Creager and Mrs. Barbara Creager
Elizabeth Coe
First Bank and Trust Company
Mr. and Mrs. John D. Groendyke
Mr. and Mrs. Boots Hall
Mr. Richard James
The Fred and Mary Eddy Jones Foundation
Estate of Hazel E. Kealiher
Ladies Auxiliary Veterans of Foreign Wars
Haskell L. and Wilda Looney
Mrs. Susan Loosen
Dr. and Mrs. B. P. Loughridge
Mr. and Mrs. Billy J. McEver
Midstate Traffic Control Inc.
Bill and Kay Palmeter
Mr. and Mrs. Harold G. Powell
Estate of Dean Ranson
Dr. Galen and Mrs. Bobbie Robbins
Estate of Carolyn Seabrook
Charles O. and Betty Smith
The Stillwater National Bank and Trust Company
Mr. and Mrs. William H. Talley
Estate of Celestine Catherine Theimer
Tom and Judy Vickers
Dr. Gregory F. and Mrs. Traci Walton
Willis HRH
Stephen F. and Barbara D. Young
Laurence S. Youngblood Foundation

$1,000 - $4,999

Mr. and Mrs. Mike Adams
Richard M. and Carolyn Adkins
Drs. Pepe Alberola-Ila and Susan E. Kovats
Paul and Joan Allen
Greg and Elizabeth Allen
Perry and Bettye Ames
Mrs. Leota Margie Amsey
Mr. and Mrs. E. R. Andrew
Anonymous
Aven Gas and Oil Inc.
Jim and Cyndi Baker
Henry G. and Mary Ellen Baker
Estate of Tilbert Leon Barber
R. Michael and Carla G. Barber
Mrs. Ruby M. Barber
Mr. and Mrs. Thomas D. Barbour Sr.
Miss Betsy L. Barnes
Ms. Cindy Barrios
Mrs. Patricia P. Bartlett
Jim C. and Kay Bass
Mr. and Mrs. Bill D. Bateman
Mrs. Corrine Batterton
Jimmy R. and H. Jean Bayles
Mr. and Mrs. Richard A. Beale
Mr. and Mrs. Vernon Belcher
David and Jane Best/Best Companies
Mr. Stephen F. Biddle
Mr. Bill Birchall
Mrs. Mary C. Blanton
Mr. and Mrs. Jeffrey A. Bonney
John and Clara Bowen
Mrs. Betty L. Bower
Mr. and Mrs. Ted L. Bowling
Del and Peggy Boyles
Mrs. Mary J. Bredel
Brooks Marine/Frank Wohl Memorial Bass Tournament
Ms. Susan Ross and Dr. D. Randolph Brown Jr.
Mr. and Mrs. David J. Brown
Jack and Judy Bryan
Mr. and Mrs. Bruce A. Bryan
Mr. and Mrs. Richard C. Burgess
Ms. Gretta J. Burnett
Mr. John R. Burnett
Mr. and Mrs. Merrill B. Burruss Jr.
Robert D. and Dolores P. Call
Mrs. Jo Anna Campbell
T. J. Campbell Construction Company
Drs. J. Donald and Patricia Capra
Dr. R. B. Carl
Ms. JoAnn Casey
Mr. Robert E. Cashman
Mr. and Mrs. Len B. Cason
The Charles and Marion Weber Foundation
Ms. Vicky Palmer Chase
Bill and Carolyn Chatham
Mrs. Jacqueline M. Cheatham
Mr. William I. Churchill
Mr. and Mrs. Max J. Claybaker
Mrs. Louise D. Cleary
J. L. and C. N. Coffman Foundation Trust
Mr. R. W. Collier
Mark and Becky Collins
Mrs. Sheryl Colton
Coppermark Bank
Cornerstone Financial Strategies

Mr. and Mrs. Chuck Cotter
Mr. Michael L. Cox
Dan and Mary Ann Craige
Clair and Stephanie Craighead
Mrs. Margarette H. Crane
Mr. and Mrs. Jack R. Crissup
Mr. and Mrs. Stanley R. Crites
Mr. Harold L. Crites
Russell and Hazel Crooch Endowment Fund
Mr. and Mrs. Joe H. Crosby
Dean and Barbara S. Cunningham
Mr. Creston C. Cutchall
Ed and Anne Dalton
Mrs. Alice Dangott
Mrs. Nancy Davies
Ms. Donna J. Davis
Drs. Dean Dawson and Susannah Rankin
Mr. James C. Day
DCF Enterprises Inc.
Al and Rita Dearmon
Mrs. Toni Dekock
Mr. and Mrs. Mark Dick
Mr. and Mrs. Jack E. Dieken
Dan and Kay Dillingham
Thang C. and Laurie Do
Mr. and Mrs. Richard Dobbs
Ms. Ann G. Doyle
Bill and Barbara Durrett
Mr. and Mrs. I. W. Ellard
Mr. and Mrs. Clark Ellison
Jerry and Joanne Emmons
Ms. Patricia Evans
Robert and Lura Fabian
Farmers and Merchants National Bank
Ms. Ann Felton
Mr. and Mrs. Richard D. Finley
First National Bank of Altus
First National Bank of Oklahoma
Dr. and Mrs. Robert A. Floyd
Mr. Maurice L. Forney
Ed and Jeanne Fowler
Doug and Elaine Fransen
Fraternal Order of Eagles Grand Aerie
Mr. and Mrs. Richard Friant
Mr. Forrest L. Frueh
Mrs. Jane Jayroe and Mr. Gerald L. Gamble
Dr. and Mrs. John H. Gardner
Mr. and Mrs. George Gibson
Ms. Carol A. Glass
Dr. Gary Gorbsky
Mr. A. W. Green
Mr. John W. Griffin
Griffin Holdings Inc.
Mrs. Evelyn F. Grisso
Mr. L. A. Guest
Roger V. and Jacqueline O. Haglund
Miss Maguire Hall
Mr. B. J. Hall
Mr. and Mrs. Pat Hallren
John Hancock Financial Services, Inc.
Happiness is Helping Foundation
Burns and Ann Hargis
Mrs. Beverly A. Harkness
Mr. and Mrs. Claude M. Harris III
Robert and Crosby Harris
Roy and Maxine Hartman
Mr. Ron F. Hartman
Mr. and Mrs. Russell O. Hayes
Mrs. Joy I. Heiman
Ms. Melinda J. Heitz
Miss Evelyn E. Helm
Mr. and Mrs. Frank X. Henke III
Heritage Trust Company
Mrs. Lois C. Herndon
Michael and Ann Hill
Mr. Randy Hogan
Mrs. Jean F. Holliman
Mrs. Nadine Holloway
The Honorable Jerome A. Holmes
Jerry and Catherine Hoopert
Estate of Gladys Horner
Mrs. Maxine Housholder
Mr. John M. Huber
Brian and Pam Hudson
John and Janet Hudson
Drs. John and Debbie Huff
Mr. and Mrs. Paul Huffman
Idabel National Bank
Ms. Jolene Ingram
Mr. L. Richard and Dr. Sharon H. Iorio
JAAM Trust
Mr. James Wesley Jack
Dr. and Mrs. Bretton H. Jameson
Drs. John and Cathy Jameson
Jerry and Loretta Janzen
Mrs. Kelly G. Jeffries
Brian and Michelle Joachims
Darryl and Marcia Johnson
Krista M. Jones, DDS, PC
Ms. Jo Jones
Michael and Cynthia Jones
Mr. and Mrs. Dwight Journey
Kachina Royalty Corporation
Mrs. Lois M. Kate
Mr. Richard B. Kells
Mr. Kelsey T. Kennedy
Melvin and Joyce Lacey Kenney
Mrs. Lou C. Kerr/The Kerr Foundation
Mr. and Mrs. August M. Khilling
John J. and Tracy Kidwell
Mr. and Mrs. Robert L. Kingsley
E. P. and Roberta L. Kirschner Foundation
Mr. and Mrs. Ed Krei
Estate of Mollie Krisman
Mr. and Mrs. Raymond P. Krob
Ms. Linda A. Lambert
Ms. Vaughndean Landes
Ms. Claudia J. Landrum
Dr. Rosalie A. Lavon
Mr. Ray M. League
Mr. and Mrs. Vernon Leake
Ms. Elinor A. LeDoux
Mr. M. Stanley Lee
Gary and Martha Leff
Mr. and Mrs. Bruce B. Lenz
Herb and Pat Leonard
Ms. Sharon K. Lester
Harrison and Elaine Levy
Mr. James A. Logan Jr.
Dave and Lana Lopez
Melvin Hugh and Inge Madewell
Paul Mainard Family Trust
Mr. and Mrs. Warren D. Majors
Mrs. Avis L. Marcum
Mrs. Becky Marshall
Marzell Clubb
Mrs. Ilo W. Matchett
Mr. and Mrs. Gene Mayo
Rod and Gigi McEver
Mr. P.V. McGivern
Ms. Betty McGuinness
Tony and Janis McKaig
Mrs. Chloe Ann McKaig
Cameron and Margaret McLain
Mason and Joye McLain
Mr. and Mrs. Richard L. McLennan
Ms. Margaret B. McMillen
Frank and Nadine McPherson
Mr. and Mrs. Doug McQueen
Mr. and Mrs. David L. Meara
Randy and Linda Mecklenburg
Ron and Linda Merritt
Mr. and Mrs. Philip J. Meyer
Ms. Judy Ann Mikkelson
Chuck and Mary Mikkelson
Miller Family Foundation
Mr. Bart Mitchell
Mr. and Mrs. David Mizirl
Mr. and Mrs. James R. Moore
Mr. and Mrs. Jim M. Morris
Larry and Margaret Morris
Mrs. A. Irene Moser
Richard and Della May Moulson
Gary and Gayle Mourton
Mueggenborg Family Memorial
Estate of N. Faye Mullins
Mr. and Mrs. Clarence E. Mullins
Mr. and Mrs. Howard W. Myers
Bruce and Marilyn Naylor
NBC Oklahoma
Ms. Sharon Neuwald
Mr. Lloyd Noble II
Mr. David Nordyke
Rob and Sara Northwood
OCCF D. A. and D. B. Harmon Memorial Fund
OCCF OMRF Research Fund
Mrs. Frances W. O'Hornett
Oklahoma Association Mother's Clubs Grant Fund
Oklahoma Country Music Association
Dorothea French Fund
Rudy and Van Oliver Jr.
Mr. and Mrs. David Onken
Order of the Eastern Star #422
Kenneth and Barbara Palmer
Mr. Fieldon L. Parham
Mr. and Mrs. Max Parr
Tom and Ashley Parrish

Richard and Gayle Parry
Jack and Janis Perrault
Mr. and Mrs. Gary C. Pierson
Dick and Gerry Pittenger
Mr. and Mrs. John R. Preston
Mrs. Mona Z. Preuss
Mr. Gene Rainbolt
Mrs. Mary Alice Rainbolt
Mrs. Mary Ranson
John and Robbie Reagan
Ms. Martha Ellen Records
Mr. George J. Records Jr.
Mrs. Joan Redding
Mr. and Mrs. Dee A. Replogle Jr.
Republic Bank and Trust
Gordon and Mary Jane Richards
Herschel and Cathy Roberts
Bill and Corrine Robertson
Ms. Beverly Rodgers
Mrs. Sarah Rodgers
G. Neal and Joanne Rogers
Mr. Robert L. Rogers
Rogers and Bell
Steve and Lesa Rohrer
Ms. Kathryn R. Ryan
Mr. and Mrs. John Sakosits
Mrs. Dorothy R. Sales
Mrs. Mary K. Sanditen
Mrs. Patricia P. Savage
Paul and Carolyn Schulte
Mrs. Kathryn Metha Scott
SemGroup L.P.
Mrs. Sue Seymour
Mr. Greg S. Shepherd
Alan and Kim Sheppard
Rex and Marilyn Sheppard
Mr. Richard M. Singer
Phil and Sue Smauder
Mr. and Mrs. Ed L. Smith
Mr. and Mrs. Ralph C. Smith
Mrs. Margaret D. Smith
Smith and Pickel Construction Inc.
Mr. and Mrs. John F. Snodgrass
William A. and Janet E. Snyder
Mrs. Wilma J. Soper
Southern Group of State Foresters
Mr. and Mrs. John Spaid
Jeff and Judith Stallsmith
Mr. and Mrs. Craig Stanley
Phil and Genia Stenseth
The Stock Exchange Bank
Dr. and Mrs. Daniel R. Stough
Mr. and Mrs. Robert J. Stracke
Mr. and Mrs. Ross M. Stuntz
Coy and Jeleta Sullivan
Ross and Margaret Swimmer
Ms. Mary Ann Talbutt
LeRoy and Jane Thompson
Dr. Linda Thompson
Tom Johnson Investment Management Inc.
Mr. and Mrs. Clyde D. Towery
Mr. and Mrs. Roy E. Townsdin
Mr. and Mrs. Larry Trachtenberg
Chester Tracy Farm
Ms. Lynne Trigg
Mr. John A. Trigg
Stephen E. and Maureen Trotter
William D. and Ann B. Trumbly
Ron and Judy Turner
United Methodist Home of Enid Inc.
United Way of Norman Inc.
Mr. and Mrs. John N. Waldo
Dr. Donald S. and Mrs. Geraldine P. Waldorf
Mr. and Mrs. Gary V. Walker
Ms. Sue Ann Walls
L.O. Ward Petroleum Corporation
Warren Clinic of McAlester
Donald R. and Jean Wasson
Mr. and Mrs. Frank J. Waxman
Mr. and Mrs. Marcus Weatherall Sr.
Mr. Steve E. Wells
Dan and Carmalieta Wells
Weokie Credit Union Foundation
Mr. and Mrs. John C. West/West Family Foundation
Wetherbee Electric Inc.
Don and Linda Wiens
Ron and Karen Williams
Mrs. Mary Jo Williams
John and Margaret Williford
Mr. and Mrs. Daniel R. Willits
Mr. and Mrs. Daniel G. Wilson
Jim C. and Cynthia T. Wolfe
Mr. Glen Wood and Dr. Judith James-Wood
Mr. David D. Woodward
Dick and Camilla Wright
Dr. and Mrs. William B. Wynn
Mr. and Mrs. Rodney W. Ylitalo
Jim and Nancy Yoch
Ms. Linda R. Young
Mr. W. O. Young

$999 - $500

Miss Mary Evelyn Adams
Mr. Winford Akins
Anonymous
American Fidelity Property Company
ARINC Inc.
Mr. and Mrs. Jimmie Lynn Austin
Mr. Bob J. Bailey
Jerry D. Balentine, PC and Associates
Mr. and Mrs. Jack Bass
Mr. Richard A. Birchall
Bill and Patty Boerstler
Mrs. Coyla J. Bowden
Jeff and Karen Bowser
Mr. and Mrs. John T. Brown
Pete and Barbara Brown
Rayford and Kathleen Brown
Mrs. Dolores M. Brown
Mr. and Mrs. Jim Burnside
Mr. Gilmer Capps
Central National Bank of Poteau
Mrs. Alyce J. Chappell
The Chickasaw Nation
Mr. Winston B. Coffman
Mr. and Mrs. J. J. Collins
Commerce Bank
Mr. James D. Comstock
Ms. Ernestine E. Cook
Mrs. Mineva Crank
Doug and Elizabeth Crews
Mrs. Jewell Danford
Mrs. Betsy A. Daugherty
The Dave Maher Family
Mr. and Mrs. Jerry Delozier
Mr. and Mrs. W. J. Dillon III
Mr. Larry Fenity
Tom and Ann Flesher
Mr. and Mrs. Alfred M. Flusche
Tom and Joyce Frazier
John and Marge Gaberino
Miss Mildred J. Garton
Mrs. Mildred Gay
Ms. Ann Gibbons
Mr. and Mrs. Olin Gilbert
Mr. and Mrs. Jack M. Givens
Tom and Sandy Goldsworthy
Mrs. Zelda Goodnight
Mr. David W. Gorham
Grow For Life
George and Kay Halko
Mr. and Mrs. Harold Halvorson
Mr. Joseph Hamra, Jr.
Don and Luella Haralson
Dorcas Clark Harley, MD
Hartzog, Conger, Cason and Neville
Mr. and Mrs. Steven Kim Hatfield
Mr. and Mrs. Holt Hickman
Frank D. and Betty Jo Hill
Mr. Kurt L. Hudson
Mr. and Mrs. Homer H. Hulme Jr.
J and M Investment Company
Mr. Lee Roy Jameson
Mr. Gerald H. Jobe
Clay and Lynette Jones
Fred and Lois Kate Fund
Mr. Kent Kennedy
George S. (Stan) and Sally Kimball
Ms. Joanna L. Latting
Tom and Kate Lay
Ervin and Mary Grace Lebeda
Mr. and Mrs. Edwin Leslie
Ms. Darlene Lewis
Mr. Dan Little
Mr. and Mrs. Tom E. Love
Robert F. and Alice Lovely
Mac's Investments LLC
Mrs. Linda Matlock
Mrs. Vera McLellan
Mr. Gary W. Melsby
Microsoft Matching Gifts Program
Mr. and Mrs. Kevin Miller
Ms. April Miller
Mr. and Mrs. V. David Miller
Eddie and Bonnie Monarch

Mr. and Mrs. Larry D. Neal
The Neiman Marcus Group
Mr. Scranton G. Nesbitt
John B. and Dorothy M. Nolan Fund
James H. and Madalynne Norick
Ms. Penny Norman
Ms. Jane Ann Norris
OCCF Kathleen Lister Fund
Oklahoma State Bank
Partnership of Sun Vista RV Resort
Mr. Marvin York and Mrs. Rebecca Patton
Mr. Merlyn N. Pearson
Mr. Don Pettyjohn
George and Lynn Pettyjohn
Ms. Laura L. Pompa
Mr. and Mrs. Victor W. Pryor Jr.
David and Kim Rainbolt
The Recognition Company
Mr. and Mrs. George J. Records
Mr. and Mrs. Donald C. Riffel
Dr. John A. Robinson
Mrs. E. Joan Rollins
RoseRock Bank
Mrs. Sharon Roth
Bob and Lynne Rowley
Ed and Rene' Safley
Mr. Duaine Schoneweis
Clifton and Gloria Scott
Mr. and Mrs. John A. Shelley
Ms. Vina Showers
Dr. Robin L. Smith
Kenneth and Jo Ann Smith
Mr. J. B. Smith
Mrs. Barbara J. Smith
Mr. and Mrs. Mike Somers
Mr. and Mrs. Kenneth A. Stanley
Kenneth and D. J. Steele
Miss Joy Sullivan
Superstition Sunrise RV Resort
Charles and Janet Talley
David Taylor and Margaret Dawkins
Ms. Jane Taylor
Ms. Cheri Thibault
Dr. and Mrs. J. Harold Tisdal
Mr. William R. Trautman
United Way of Tri-State Inc.
Arthur and Louise Van Gundy
Mr. John D. Walker
Allyn and Donna Warkentin
Mr. and Mrs. W. S. Warner
Joe and Laura Warriner
Ken and Barbra Weikel
Ms. Mary Lynn West
Ms. Ann T. White
George and Lynnette Whitley
George and Ruth Ann Wilburn
Dr. Peter Winn
Ms. Louise Wolff
Mr. and Mrs. R. Deane Wymer
Dr. Lijun Xia and Ms. Zhimin Liang

DISCOVERIES CAMPAIGN

OMRF is poised to play a key role in the revolution in biomedical science that tomorrow will bring. With our staff of world-renowned scientists, we will perform the research that drives the next generation of life-changing discoveries. To this end, OMRF has launched the most ambitious expansion in our 63-year history–the Discoveries Campaign.

The centerpiece of this effort will be a new "green" research tower, the first lab building in North America to tap both wind and solar energy as power sources. This new structure will add 180,000 square feet of state-of-the-art scientific and administrative space, and it will serve as a home to the most precious resource in biomedicine: human capital.

We have set the total fundraising goal for the Discoveries Campaign at $125 million: $85 million to construct and furnish the building and $40 million to recruit 30 world-class scientists and equip their labs. Achieving this goal will ensure that Oklahoma stays on the leading edge of biomedical research. And that OMRF scientists continue making discoveries that make a difference.

Leadership Gifts and Pledges

$1,000,000 and above

J.A. and Leta Chapman Trusts
Mary K. Chapman Foundation
David Chernicky
Hocker Foundation
Aubrey and Katie McClendon
Samuel Roberts Noble Foundation Inc.
Presbyterian Health Foundation
The Rainbolt Family
State of Oklahoma Opportunity Fund

$500,000 - $999,999

John and Virginia Groendyke
Inasmuch Foundation
McCasland Foundation
Sarkeys Foundation

$250,000 - $499,999

Ann Simmons Alspaugh
William Randolph Hearst Foundation
Puterbaugh Foundation
Dr. John H. Saxon III

Total gifts/pledges less than $ 250,000	$ 1,559,230
Campaign total as of December 31, 2008	$47,708,230

SELECTED 2008 PUBLICATIONS

Arthritis and Immunology Research Program

Carreras E, Turner S, Paharkova-Vatchkova V, Mao A, Dascher C, Kovats S. Estradiol acts directly on bone marrow myeloid progenitors to differentially regulate GM-CSF or Flt3 ligand-mediated dendritic cell differentiation. J Immunol 180:727-738, 2008.

Dozmorov MG, Kyker KD, Hauser PJ, Saban R, Buethe DD, Dozmorov I, Centola MB, Culkin DJ, Hurst RE. From microarray to biology: an integrated experimental, statistical and in silico analysis of how the extracellular matrix modulates the phenotype of cancer cells. BMC Bioinformatics 9 Suppl 9:S4, 2008.

Graham RR, Cotsapas C, Davies L, Hackett R, Lessard CJ, Leon JM, Burtt NP, Guiducci C, Parkin M, Gates C, Plenge RM, Behrens TW, Wither JE, Rioux JD, Fortin PR, Graham DC, Wong AK, Vyse TJ, Daly MJ, Altshuler D, Moser KL, Gaffney PM. Genetic variants near TNFAIP3 on 6q23 are associated with systemic lupus erythematosus. Nat Genet 40:1059-1061, 2008.

International Consortium for Systemic Lupus Erythematosus Genetics (SLEGEN), Harley JB, Alarcón-Riquelme ME, Criswell LA, Jacob CO, Kimberly RP, Moser KL, Tsao BP, Vyse TJ, Langefeld CD, Nath SK, Guthridge JM, Cobb BL, Mirel DB, Marion MC, Williams AH, Divers J, Wang W, Frank SG, Namjou B, Gabriel SB, Lee AT, Gregersen PK, Behrens TW, Taylor KE, Fernando M, Zidovetzki R, Gaffney PM, Edberg JC, Rioux JD, Ojwang JO, James JA, Merrill JT, Gilkeson GS, Seldin MF, Yin H, Baechler EC, Li QZ, Wakeland EK, Bruner GR, Kaufman KM, Kelly JA. Genome-wide association scan in women with systemic lupus erythematosus identifies susceptibility variants in ITGAM, PXK, KIAA1542 and other loci. Nat Genet 40:204-210, 2008.

Nath SK, Han S, Kim-Howard X, Kelly JA, Viswanathan P, Gilkeson GS, Chen W, Zhu C, McEver RP, Kimberly RP, Alarcón-Riquelme ME, Vyse TJ, Li QZ, Wakeland EK, Merrill JT, James JA, Kaufman KM, Guthridge JM, Harley JB. A nonsynonymous functional variant in integrin-alpha(M) (encoded by ITGAM) is associated with systemic lupus erythematosus. Nat Genet 40:152-154, 2008.

Sawalha AH, Kaufman KM, Kelly JA, Adler AJ, Aberle T, Kilpatrick J, Wakeland EK, Li QZ, Wandstrat AE, Karp DS, James JA, Merrill JT, Lipsky P, Harley JB. Genetic association of interleukin-21 polymorphisms with systemic lupus erythematosus. Ann Rheum Dis 67:458-461, 2008.

Wrammert J, Smith K, Miller J, Langley WA, Kokko K, Larsen C, Zheng NY, Mays I, Garman L, Helms C, James J, Air GM, Capra JD, Ahmed R, Wilson PC. Rapid cloning of high-affinity human monoclonal antibodies against influenza virus. Nature 453:667-671, 2008.

Wren JD. URL decay in MEDLINE--a 4-year follow-up study. Bioinformatics 24:1381-1385, 2008.

Cardiovascular Biology Research Program

Fu J, Gerhardt H, McDaniel JM, Xia B, Liu X, Ivanciu L, Ny A, Hermans K, Silasi-Mansat R, McGee S, Nye E, Ju T, Ramirez MI, Carmeliet P, Cummings RD, Lupu F, Xia L. Endothelial cell O-glycan deficiency causes blood/lymphatic misconnections and consequent fatty liver disease in mice. J Clin Invest 118: 3725-3737, 2008.

Johnson CM, Chichili GR, Rodgers W. Compartmentalization of phosphatidylinositol 4,5-bisphosphate signaling evidenced using targeted phosphatases. J Biol Chem 283:29920-29928, 2008.

Miner JJ, Xia L, Yago T, Kappelmayer J, Liu Z, Klopocki AG, Shao B, McDaniel JM, Setiadi H, Schmidtke DW, McEver RP. Separable requirements for cytoplasmic domain of PSGL-1 in leukocyte rolling and signaling under flow. Blood 112:2035-2045, 2008.

Yago T, Lou J, Wu T, Yang J, Miner JJ, Coburn L, Lopez JA, Cruz MA, Dong JF, McIntire LV, McEver RP, Zhu C. Platelet glycoprotein Ibalpha forms catch bonds with human WT vWF but not with type 2B von Willebrand disease vWF. J Clin Invest 118:3195-3207, 2008.

Cell Cycle and Cancer Biology Research Program

Conrad MN, Lee CY, Chao G, Shinohara M, Kosaka H, Shinohara A, Conchello JA, Dresser ME. Rapid telomere movement in meiotic prophase is promoted by NDJ1, MPS3, and CSM4 and is modulated by recombination. Cell 133:1175-1187, 2008.

Vorozhko VV, Emanuele MJ, Kallio MJ, Stukenberg PT, Gorbsky GJ. Mutliple mechanisms of chromosome movement in vertebrate cells mediated through the Ndc80 complex and dynein/dynactin. Chromosoma 117:169-179, 2008.

Free Radical Biology and Aging Research Program

Applegate MA, Humphries KM, Szweda LI. Reversible inhibition of alpha-ketoglutarate dehydrogenase by hydrogen peroxide: glutathionylation and protection of lipoic acid. Biochemistry 47:473-478, 2008.

D'Souza A, Kurien BT, Rodgers R, Shenoi J, Kurono S, Matsumoto H, Hensley K, Nath SK, Scofield RH. Detection of catalase as a major protein target of the lipid peroxidation product 4-HNE and the lack of its genetic association as a risk factor in SLE. BMC Med Genet 9:62, 2008.

Genetic Models of Disease Research Program

Clarke M, Maddera L, Harris RL, Silverman PM. F-pili dynamics by live-cell imaging. Proc Natl Acad Sci USA 105:17978-17981, 2008.

Edwards SL, Charlie NK, Milfort MC, Brown BS, Gravlin CN, Knecht JE, Miller KG. A novel molecular solution for ultraviolet light detection in *Caenorhabditis elegans*. PLoS Biol 6:e198, 2008.

Immunobiology and Cancer Research Program

Chen X, Esplin BL, Garrett KP, Welner RS, Webb CF, Kincade PW. Retinoids accelerate B lineage lymphoid differentiation. J Immunol 180:138-145, 2008.

Joachims ML, Marble PA, Laurent AB, Pastuszko P, Paliotta M, Blackburn MR, Thompson LF. Restoration of adenosine deaminase-deficient human thymocyte development in vitro by inhibition of deoxynucleoside kinases. J Immunol 181:8153-8161, 2008.

Langer M, Malykhin A, Maeda K, Chakrabarty K, Williamson KS, Feasley CL, West CM, Metcalf JP, Coggeshall KM. *Bacillus anthracis* peptidoglycan stimulates an inflammatory response in monocytes through the p38 mitogen-activated protein kinase pathway. PLoS ONE 3:e3706, 2008.

Malhotra S, Baba Y, Garrett KP, Staal FJ, Gerstein R, Kincade PW. Contrasting responses of lymphoid progenitors to canonical and noncanonical wnt signals. J Immunol 181:3955-3964, 2008.

Nie L, Perry SS, Zhao Y, Huang J, Kincade PW, Farrar MA, Sun XH. Regulation of lymphocyte development by cell type-specific interpretation of notch signals. Mol Cell Biol 28:2078-2090, 2008.

Nixon JC, Ferrell S, Miner C, Oldham AL, Hochgeschwender U, Webb CF. Transgenic mice expressing dominant-negative Bright exhibit defects in B1 B cells. J Immunol 181:6913-6922, 2008.

Takedachi M, Qu D, Ebisuno Y, Oohara H, Joachims ML, McGee ST, Maeda E, McEver RP, Tanaka T, Miyasaka M, Murakami S, Krahn T, Blackburn MR, Thompson LF. CD73-generated adenosine restricts lymphocyte migration into draining lymph nodes. J Immunol 180:6288-6296, 2008.

For a complete list of 2008 OMRF scientific publications, please go to omrf.org/2008pubs

SELECTED FINANCIAL INFORMATION

Operating Fund July 1, 2007 - June 30, 2008

OPERATING REVENUE

Competitive research grants	
National Institutes of Health grants	$ 24,431,808
Other competitive research grants	7,987,712
Total grants	32,419,520
Private contributions	
Income and gifts from trusts	7,056,362
Gifts & bequests	285,328
Contributions	1,237,247
Memorials	733,643
Total private contributions	9,312,580
Other revenue	
Interest and investment income	3,995,103
Mineral income	2,037,916
Royalties and licensing income	10,080,640
Rent, analytical lab and miscellaneous	1,376,223
Total other revenue	17,489,882
Total revenue	59,221,982
Operating revenue from wills, pledges and other restricted gifts recorded in prior years	1,334,142
Total operating revenue	60,556,124

OPERATING EXPENSES

Program services - research	47,239,713
Support services - general and administrative	5,248,979
Total operating expenses	52,488,692
Excess of revenues over expenses	$ 8,067,432

BOARD OF DIRECTORS

Greg S. Allen
Enid

Ann Simmons Alspaugh★
Oklahoma City

James Bass
Oklahoma City

Sharon J. Bell
Tulsa

The Hon. Henry Bellmon★
Red Rock

Bruce T. Benbrook
Woodward

W. Lance Benham III
Jones

Dave A. Bialis
Oklahoma City

Elizabeth Blankenship
Oklahoma City

Jil Boghetich
Oklahoma City

Barbara Braught
Duncan

Dr. D. Randolph Brown
Oklahoma City

D. Ellen Burgess
Tulsa

Merrill Burruss Jr.
Geary

C. Michael Carolina
Edmond

B. Michael Carroll
Edmond

Len Cason (Chairman)
Oklahoma City

Hiram Champlin
Enid

Elizabeth Merrick Coe★
Oklahoma City

Dr. J. Markham Collins
Tulsa

Luke R. Corbett
Oklahoma City

Dr. Louis H. Cox
Oklahoma City

Ramsey W. Drake III
Oklahoma City

William E. Durrett
Oklahoma City

The Hon. Claire V. Eagan
Tulsa

Pat Evans
Ponca City

C. Randolph Everest★
Oklahoma City

Christy Everest
Oklahoma City

Ann Felton
Oklahoma City

C. Kendric Fergeson
Altus

Larry D. Ferree
Oklahoma City

Malinda Berry Fischer
Stillwater

Barbara James Fretwell
Oklahoma City

Gerald L. Gamble
Oklahoma City

John E. Green★
Oklahoma City

John W. Griffin
Muskogee

Martha Griffin
Muskogee

Virginia Groendyke
Enid

Jacqueline Haglund
Tulsa

Brooks Hall Jr.
Oklahoma City

Harold Hamm
Enid

V. Burns Hargis
Stillwater

Dr. William Hawley
Oklahoma City

Holly Cox Healey
Oklahoma City

First Lady Kim Henry
Oklahoma City

The Hon. Robert Henry
Oklahoma City

Randy King Hill
Oklahoma City

Randy Hogan
Edmond

The Hon. Jerome Holmes
Oklahoma City

Cliff Hudson
Oklahoma City

Dr. Bretton Jameson
Stillwater

Lou Kerr
Oklahoma City

Harrison Levy Jr.
Oklahoma City

Susan Loosen
Kingfisher

Jack De McCarty
Newkirk

Frank A. McPherson
Oklahoma City

Randall D. Mock
Oklahoma City

James M. Morris II
Oklahoma City

James A. Mueller
Oklahoma City

Richard H. Parry
Oklahoma City

Rebecca J. Patten
Norman

Bond Payne Jr.
Oklahoma City

Don W. Pitman
Tulsa

Gary Pierson
Oklahoma City

Harold G. Powell
Norman

Dr. J. B. Pratt Jr.
Shawnee

David E. Rainbolt
Oklahoma City

H. E. Rainbolt
Oklahoma City

Dee A. Replogle Jr.
Oklahoma City

Dr. Galen P. Robbins
Oklahoma City

Patrick Rooney
Oklahoma City

Robert J. Ross
Oklahoma City

Michael S. Samis
Oklahoma City

Dr. John H. Saxon III
Muskogee

Paul I. Schulte
Kingfisher

John F. Snodgrass★
Ardmore

Phyllis J. Stough
Oklahoma City

Paul B. Strasbaugh★
Edmond

Ross O. Swimmer
Tulsa

Bill Swisher
Oklahoma City

Becky Switzer
Norman

The Hon. Kathryn L. Taylor
Tulsa

The Hon. Steven Taylor
McAlester

Betsy Zahn Thorpe
Oklahoma City

Dr. Gregory Walton
Oklahoma City

R. Deane Wymer
Fairview

★ *Life Director*

DISCOVERIES THAT MAKE A DIFFERENCE

Since 1946, OMRF has been dedicated to understanding and developing more effective treatments for human disease. Our scientists focus on such critical research areas as heart disease, cancer, lupus and Alzheimer's disease. Discoveries at OMRF have helped create three FDA-approved drugs, including first and only treatment for a deadly blood infection that kills 200,000 Americans each year. OMRF researchers have also identified the enzyme believed responsible for Alzheimer's disease, and an experimental drug based on that discovery is now progressing through human clinical trials. *Learn more at OMRF.org/discoveries.*

THE MORE YOU GIVE . . .

With OMRF's one-of-a-kind state tax credit, making the decision to give has never been easier. For every $2 you donate to OMRF, you'll get a $1 tax credit (for gifts up to $2,000 for individuals and $4,000 for joint filers). It's simple—the more you give, the more you save. *Visit OMRF.org/taxcredit.*