

## CURRICULUM VITAE

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Born: December 10, 1951  
Saginaw, Michigan

Awards: **Second Place for National Inventor of the Year, 1997**

Education: Ph.D., Molecular and Population Genetics  
June, 1981  
University of Georgia  
Athens, Georgia 30602

Ph.D. Dissertation: Expression of *Euglena Gracilis* Chloroplast DNA in an  
*Escherichia Coli In Vitro* System.

Major Professor: Dr. James R.Y. Rawson  
Departments of Botany and Biochemistry  
University of Georgia  
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Employment Experience: Chairman  
January, 2016 – Present  
Institute of Advanced Telomere Medicine  
Tokyo, Japan  
<http://telomere.or.jp/>

President & CEO  
(February, 2012 – present)  
Andrews, Inc.  
Reno, Nevada  
[www.sierrasci.com](http://www.sierrasci.com)

President & CEO  
(January, 2009 – present)  
Sierra Sciences, LLC  
Reno, Nevada  
[www.sierrasci.com](http://www.sierrasci.com)

Founder and Vice President of Research  
(January, 1998 – December, 2008)  
Sierra Sciences, LLC  
Reno, Nevada  
(Note: Sierra Sciences was known as Yonder Technologies until  
August, 1999).

Director of Technology Development

(October, 1997 – January, 1998)  
EOS Biotechnology  
South San Francisco, California

Director of Molecular Biology  
(December, 1993 – October, 1997)  
Geron Corporation  
Menlo Park, California

Director of Molecular Biology  
(April, 1990 – December, 1993)  
Codon Corporation / Berlex Biosciences  
Richmond, California  
(Note: Codon Corporation changed its name to Berlex in 1991  
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Senior Scientist  
(August, 1982 – April, 1990)  
Codon Corporation  
Brisbane, California

Senior Scientist  
(May, 1981 – August, 1982)  
Armos Corporation  
So. San Francisco, California

## **Publications, Abstracts, and Patents**

### ***Publications***

#### **The Complexity and Abundance of RNA Transcribed from Restriction Endonuclease Fragments of Euglena Chloroplast DNA During Chloroplast Development.**

Rawson, J. R. Y., C. L. Boerma, W. H. Andrews, and C. G. Wilkerson.  
Biochemistry 20, 2639-2644. (1981)

#### **Cloning of Chloroplast DNA in Bacterial Plasmid Vectors**

Rawson, J. R. Y. and W. H. Andrews.  
In Methods in Chloroplast Molecular Biology. ed. M. Edelman, R. B. Hallick, and N. H. Chua.  
Elsevier/North Holland. 493-506 (1982)

#### **Expression of Cloned Chloroplast DNA in E. coli Minicells**

Andrews, W. H. and J. R. Y. Rawson  
In Methods in Chloroplast Molecular Biology. ed. M. Edelman, R. B. Hallick, and N. H. Chua.  
Elsevier/North Holland. 565-571 (1982)

#### **Expression of Cloned Chloroplast DNA from Euglena gracilis in an In Vitro DNA-Dependent Transcription-Translation System Prepared from E. coli.**

Andrews, W. H. and J. R. Y. Rawson  
Plasmid 8, 148-163 (1982)

#### **Enzymatic Properties of Bovine Prochymosin Synthesized in Escherichia coli.**

McCaman, M. T., W. H. Andrews, and J. G. Files

J. Biotechnology 2, 177-190 (1985)

**Characterization of a Surface Antigen of Eimeria-Tenella Sporozoites and Synthesis from a Cloned Complementary DNA in Escherichia-Coli.**

Brothers VM, Kuhn I, Paul LS, Gabe JD, Andrews WH, Sias SR, McCaman MT, Dragon EA, Files JG.

Mol Biochem Parasitol 28, 235-248 (1988)

**Cloning of the Gene Coding for a Human Receptor for Formyl Peptides Characterization of a Promoter Region and Evidence for Polymorphic Expression.**

Perez HD, Holmes R, Kelly E, McClary J, Chou Q, Andrews WH.

Biochemistry 31, 11595-11599 (1992)

**Cloning of a cDNA Encoding a Receptor Related to the Formyl Peptide Receptor of Human Neutrophils.**

Perez HD, Holmes R, Kelly E, McClary J, Andrews WH.

Gene 118, 303-304 (1992)

**Oxidation of a specific methionine in thrombomodulin by activated neutrophil products blocks cofactor activity. A potential rapid mechanism for modulation of coagulation.**

Glaser CB; Morser J; Clarke JH; Blasko E; McLean K; Kuhn I; Chang RJ; Lin JH; Vilander L; Andrews WH.

J Clin Invest 90, 2565-73 (1992)

**Formyl Peptide Receptor Chimeras Define Domains Involved in Ligand Binding.**

Perez HD, Holmes R, Vilander LR, Adams RR, Manzana W, Jolley D, Andrews WH.

J Biol Chem 268, 2292-2295 (1993)

**The Short Loop Between EGF-like Domains Four and Five is Critical for Human Thrombomodulin Function.**

Clarke JH, Light DR, Blasko E, Parkinson JF, Nagashima M, McLean K, Vilander L, Andrews WH, Morser J, Glaser CB.

J Biol Chem 268, 6309-6315 (1993)

**Expression Efficiency of the Human Thrombomodulin-Encoding Gene in Various Vector and Host Systems.**

Lin J-H, Wang M, Andrews WH, Wydro R, Morser J.

Gene 147, 287-292 (1994)

**Isolation of Extracytoplasmic Proteins from *Serpulina hyodysenteriae* B204 and Molecular Cloning of the *flaB1* Gene Encoding a 38-Kilodalton Flagellar Protein.**

Gabe JD, Chang R-J, Slomiany R, Andrews WH, McCaman MT.

Infection and Immunity 63, 142-148 (1994)

**Human Formyl Peptide Receptor Ligand Binding Domain(s) - Studies Using an Improved Mutagenesis/Expression Vector Reveal a Novel Mechanism for the Regulation of Receptor Occupancy.**

Perez DH, Vilander L, Andrews WH, Holmes R.

J Biol Chem 269, 22485-22487 (1994)

**Modulation of Glycosaminoglycan Addition in Naturally Expressed and Recombinant Human Thrombomodulin.**

Lin JH, McLean K, Morser J, Young TA, Wydro RM, Andrews WH, Light DR.

J Biol Chem 269, 25021-25030 (1994)

**Cataloging Altered Gene Expression in Young and Senescent Cells using Enhanced Differential Display.**

Linskens MH, Feng J, Andrews WH, Enlow BE, Saati SM, Tonkin LA, Funk WD, Villeponteau B. Nucleic Acids Research 23, 3244-3251 (1995).

**The RNA Component of Human Telomerase**

Feng J, Funk WD, Wang S-S, Weinrich SL, Avilion AA, Chiu C-P, Adams RA, Chang E, Allsopp, RC, Yu J, Le S, West MD, Harley CB, Andrews WH, Greider CW, Villeponteau B. Science 269, 1236-1241 (1995).

**Telomerase Catalytic Subunit Homologs From Fission Yeast and Human.**

Nakamura TM, Morin GB, Chapman KB, Weinrich SL, Andrews WH, Lingner J, Harley CB, Cech TR. Science 277, 955-959 (1997).

**Reconstitution of Human Telomerase With the Template RNA Component hTR and the Catalytic Protein Subunit hTRT.**

Weinrich SL, Pruzan R, Ma L, Ouellette M, Tesmer VM, Holt SE, Bodnar AG, Lichtsteiner S, Kim NW, Trager JB, Taylor RD, Carlos R, Andrews WH, Wright WE, Shay JW, Harley CB, Morin GB. Nature Genetics 17, 498-502 (1997)

**Spontaneous reversal of the developmental aging of normal human cells following transcriptional reprogramming.**

Vaziri H, Chapman KB, Guigova A, Teichroeb J, Lacher MD, Sternberg H, Singec I, Briggs L, Wheeler J, Sampathkumar J, Gonzalez R, Larocca D, Murai J, Snyder E, Andrews WH, Funk WD, West MD. Regen Med. 5 (3):345-63 (2010).

**RNAi screen for telomerase reverse transcriptase transcriptional regulators identifies HIF1alpha as critical for telomerase function in murine embryonic stem cells.**

Coussens M, Davy P, Brown L, Foster C, Andrews WH, Nagata M, Allsopp R. Proc Natl Acad Sci U S A. 107(31):13842-7 (2010).

**A Natural Product Telomerase Activator As Part of a Health Maintenance Program.**

Harley CB, Liu W, Blasco M, Vera E, Andrews WH, Briggs LA, Raffaele JM. Rejuvenation Res. 14(1):45-56 (2010)

**Antiproliferative small molecule inhibitors of transcription factor LSF reveal oncogene addiction to LSF in hepatocellular carcinoma**

Grant TJ, Bishop JA, Christadore LM, Barot G, Chin HG, Woodson S, Kavouris J, Siddiq A, Gredler R, Shen X, Sherman J, Meehan T, Fitzgerald KJ, Pradhan S, Briggs LA, Andrews WH, Sarkar D, Schaus SE, Hansen U. Proc Natl Acad Sci U S A. (submitted for publication 12/30/2011, accepted 2/2/2012).

**Abstracts**

**Translational Mapping of Euglena Chloroplast DNA in E. coli Minicells.**

Andrews WH, Boerma CL, Rawson JRY. Cell Biology 79, 320A.

**The Complexity and Abundance of RNA Transcribed from Restriction Endonuclease Fragments of Euglena Chloroplast DNA.**

Rawson JRY, Boerma CL, Andrews WH, Wilkerson CG, Curtis SE.  
Cell Biology 83, 357A.

**In-vivo and In-vitro Expression of Recombinant DNA Molecules Carrying Euglena-Gracilis Chloroplast Restriction Endo Nuclease DNA Fragments.**

Andrews WH, Rawson JRY.  
J Cell Biol 87, 186A (1980)

**Molecules with Both Fibrinolytic and Antithrombotic Activities.**

Morser J, Aguilera M, Andrews WH, Blasko E, Clarke J, Kuhn I, Light D, McLean K, Vilander L.  
Fibrinolysis 4, 109 (1990)

**Cell-Line and Site-Specific Attachment of Chondroitin Sulfate to Recombinant Human Thrombomodulin.**

Lin J-H, Light D, McLean K, Andrews W, Young T, Morser J.  
Mol Biol Cell 3, 66A (1992)

**Cloning of a Human Formyl Peptide Receptor Gene.**

Perez HD, Holmes R, Kelly E, McClary J, Andrews WH.  
Clin Res 40, 352A (1992)

**Telomerase Biochemistry and Regulation in Cellular Immortalization**

Greider CW, Autexier C, Buchkovich K, Collins K, Blasco M, Avilion A, Mantell L, Prowse K, Harley C, Funk W, Andrews W, Feng J, Villeponteau B.  
Proceedings of the American Association for Cancer Research 36, 672 (1995).

**Human Telomerase Inhibition and Cancer.**

Harley CB, Andrews W, Chiu C-P, Feng J, Funk W, Gaeta F, Hirsch K, Kin NW, Kozlowski M, Wang S-S, Weinrich SL, West MD, Avilion A, Le S, Grieder CW, Villeponteau B  
Proceedings of the American Association for Cancer Research 36, 671-672. (1995)

***U.S.-Issued Patents***

**DNA encoding an antigenic protein derived from Eimeria tenella and vaccines for prevention of coccidiosis caused by Eimeria tenella**

Patent Number: US4874705, Issued 1989-10-17

**DNA encoding an antigenic protein derived from Eimeria tenella and vaccines for prevention of coccidiosis caused by Eimeria tenella**

Patent Number: US5187080, Issued 1993-02-16

**Mammalian telomerase**

Patent Number: US5583016, Issued 1996-12-10

**Mutagenesis methods and compositions**

Patent Number: US5702931, Issued 1997-12-30

**Assays for the DNA component of human telomerase**

Patent Number: US5776679, Issued 1998-07-07

**Protease-resistant thrombomodulin analogs**

Patent Number: US5827824, Issued 1998-10-27

**Mammalian telomerase**

Patent Number: US5837857, Issued 1998-11-17

**Methods and reagents for regulating telomere length and telomerase activity**

Patent Number: US5858777, Issued 1999-01-12

**Protease-resistant thrombomodulin analogs**

Patent Number: US5863760, Issued 1999-01-26

**RNA component of mouse, rat, Chinese hamster and bovine telomerase**

Patent Number: US5876979, Issued 1999-03-02

**Mammalian telomerase**

Patent Number: US5958680, Issued 1999-09-28

**RNA component of telomerase**

Patent Number: US6013468, Issued 2000-01-11

**Mammalian telomerase RNA gene promoter**

Patent Number: US6054575, Issued 2000-04-25

**Protease-resistant thrombomodulin analogs**

Patent Number: US6063763, Issued 2000-05-16

**Mammalian telomerase**

Patent Number: US6258535, Issued 2001-07-10

**Telomerase**

Patent Number: US6261836, Issued 2001-07-17

**Peptides related to TPC2 and TPC3, two proteins that are coexpressed with telomerase activity**

Patent Number: US6300110, Issued 2001-10-09

**Mammalian telomerase**

Patent Number: US6320039, Issued 2001-11-20

**Antisense compositions for detecting and inhibiting telomerase reverse transcriptase**

Patent Number: US6444650, Issued 2002-09-03

**Human telomerase catalytic subunit: diagnostic and therapeutic methods**

Patent Number: US6475789, Issued 2002-11-05

**Mammalian telomerase**

Patent Number: US6548298, Issued 2003-04-15

**Promoter for telomerase reverse transcriptase**

Patent Number: US6610839, Issued 2003-08-26

**Cells immortalized with telomerase reverse transcriptase for use in drug screening**

Patent Number: US6617110, Issued 2003-09-09

**Antisense compositions for detecting and inhibiting telomerase reverse transcriptase**

Patent Number: US6627619, Issued 2003-09-30

**Methods and compositions for modulating telomerase reverse transcriptase (TERT) expression**

Patent Number: US6686159, Issued 2004-02-03

**Telomerase promoter driving expression of therapeutic gene sequences**

Patent Number: US6777203, Issued 2004-08-17

**Method for detecting polynucleotides encoding telomerase**

Patent Number: US6808880, Issued 2004-10-26

**Telomerase**

Patent Number: US6921664, Issued 2005-07-26

**Genes for human telomerase reverse transcriptase and telomerase variants**

Patent Number: US6927285, Issued 2005-08-09

**Methods for detecting nucleic acids encoding human telomerase reverse transcriptase**

Patent Number: US7005262, Issued 2006-02-28

**Telomerase**

Patent Number: US7056513, Issued 2006-06-06

**Mammalian cells that have increased proliferative capacity**

Patent Number: US7195911, Issued 2007-03-27

**Regulatory segments of the human gene for telomerase reverse transcriptase**

Patent Number: US7199234, Issued 2007-04-03

**Telomerase expression repressor proteins and methods of using the same**

Patent Number: US7211435, Issued 2007-05-01

**Assays for TERT promoter modulatory agents using a telomerase structural RNA component**

Patent Number: US7226744, Issued 2007-06-05

**Nucleic acids encoding human telomerase reverse transcriptase and related homologs**

Patent Number: US7262288, Issued 2007-08-28

**Methods and compositions for modulating telomerase reverse transcriptase (TERT) expression**

Patent Number: US7279328, Issued 2007-10-09

**Antibody to telomerase reverse transcriptase**

Patent Number: US7285639, Issued 2007-10-23

**Identifying and testing antisense oligonucleotides that inhibit telomerase reverse transcriptase**

Patent Number: US7297488, Issued 2007-11-20

**Telomerase promoters sequences for screening telomerase modulators**

Patent Number: US7378244, Issued 2008-05-27

**Treating cancer using a telomerase vaccine**

Patent Number: US7413864, Issued 2008-08-19

**Muteins of human telomerase reverse transcriptase lacking telomerase catalytic activity**

Patent Number: US7517971, Issued 2009-04-14

**Nucleic acid compositions for eliciting an immune response against telomerase reverse transcriptase**

Patent Number: US7560437, Issued 2009-07-14

**Increasing the proliferative capacity of cells using telomerase reverse transcriptase**

Patent Number: US7585622, Issued 2009-09-08

**Human telomerase reverse transcriptase polypeptides**

Patent Number: US7622549, Issued 2009-11-24

**Antibody to telomerase reverse transcriptase**

Patent Number: US7750121, Issued 2010-07-06

**Telomerase expression repressor proteins and methods of using the same**

Patent Number: US7795416, Issued 2010-09-14

**Regulatory segments of the human gene for telomerase reverse transcriptase**

Patent Number: US7879609, Issued 2011-02-01

**Kit for detection of telomerase reverse transcriptase nucleic acids**

Patent Number: US8222392, Issued 2012-07-17

**Human telomerase catalytic subunit**

Patent Number: US8236774, Issued 2012-08-07