

## **Mark Thomas Cullen, M.D.**

CEO Petrosonics LLC • 5605 Brookmeadow Lane, Reno, NV 89511

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MEDICAL DIRECTOR, CEO

### **HIGHLIGHTS OF QUALIFICATIONS**

- Retired physician and medical director; active licenses in FL, NV and VA
- Academic medical practices: Yale University and the University of Florida
- Collaborative work with the World Health Organization (WHO), the Center for Disease Control (CDC), the National Institute of Health (NIH)
- Author, numerous periodicals (see list of publications)
- Contributor, educational television series (PBS, National Geographic)
- CEO, multiple organizations (public and private)
- International experience

### **WORK SUMMARY**

2001-Present, Founder, CEO, Petrosonics LLC (patented oil processing intellectual property)

1999-2001 Founder, CEO, Sulphco (AMEX: SUF), [www.sulphco.com](http://www.sulphco.com)

1998-2001 Founder, NuStem (now Corduse), <http://www.corduse.com/>

1996-1998 Director, Fetal Diagnostic Center, Reno, NV Founded and ran a high risk OB program at Reno, NV's two hospitals.

1992-1996 Director and Founder, Maternal-Fetal Medicine, Network, Orlando, FL. Started and operated a five hospital network obstetrics operation. Led the development of embryoscopy for identification of birth defects and infectious disease. Lectured throughout the world on HIV and the causes of birth defects. Trained medical professionals on the use of advanced embryoscopy for genetic and surgical therapy in the first trimester of fetal development.

1989-1992 Asst. Prof. and Director, Prenatal Diagnosis, University of Florida, Jacksonville, FL. Started the genetic program at UF as well as the HIV clinic. Continued to write and evaluate on prenatal diagnosis of birth defects, infectious disease and HIV. Had multiple presentations at the CDC (Atlanta) regarding HIV tracking and transfer of the disease

1987-1989 Fellow, Yale University, Maternal-Fetal Medicine, CT. As a fellow, practicing in the high risk pregnancy department, researched and documented unusual infectious diseases; responsible for identification and the tracking of Lyme disease, HIV

disease, Listeria, and the causes of infectious premature labor. During this period started invasive evaluations to look at the transplacental transfer of HIV disease. Went with the World Health Organization to Brazil for HIV studies, collaboration and conferences.

1984-1988 Resident, Yale University Hospital, CT While at Yale, as a resident, primary research focused on the development of prenatal diagnosis in the first trimester through the use of ultrasound while evaluating the terotogenic causes of birth defects. Created Yale's HIV clinic, led research in causative etiology. Was an invited participant in many of the early HIV in pregnancy projects at the NIH, CDC and World Health organization in the effort to track and follow the transfer of HIV disease.

1983-1984 Post Doctoral Fellow, Yale University. Spent time in the Howard Hughes Research facility looking and gathering Alpha Beta cells. Gathered samples and evaluated hormonal levels to predict ectopic pregnancy. Also developed and set up a lab to measure markers of bacterial infection for preterm labor.

References     Roberto Romero MD Director NIH Perinatal Division  
                      Alan Levine PHD past Director NIH Division of Heart and Lung Division  
                      John Hobbins MD Currently at UC previous Director MFM Yale

#### RELEVANT DHS/CDC TASK EXPERIENCE

- Representing Yale University, served on a World Health Organization (WHO) team investigating the HIV epidemic in South America.
- Representing the University of Florida, led a team of researchers at the U.S. Center for Disease Control (CDC) investigating the mechanisms for disease transfer in several different studies.
- International expert and lecturer in the causes and diagnosis of human birth defects and disease. Major contributor to the National Geographic film *The Biology of Human Development*.
- Traveled extensively throughout the Americas, Europe, Asia and the Middle East as a part of various medical liaison teams and research groups.
- Listed as lead contributing scientist in the use of ultrasound in medicine  
<http://www.ob-ultrasound.net/history.html> (see part 3).

#### EDUCATION:

1975-1979	St. Michael's College, VT BA Chemistry
1979-1981	St. George's School of Medicine, WI
1981-1982	CETEC, Dominican Republic
	(All clinical training at Yale University)

#### POSTGRADUATE TRAINING:

11/83-6/84	Internship, Hosp. of St. Raphael, CT Internal Medicine
1983-1984	Post Doctoral Fellow, Yale University

1984-1987	Resident, Yale University Hosp., OB/GYN
1987-1989	Fellow, Yale Univ., Maternal-Fetal Medicine

PROFESSIONAL EXPERIENCE:

1989-1992	Asst. Prof. and Director, Prenatal Diagnosis University of Florida, Jacksonville, FL
1992-1996	Director and Founder, Maternal-Fetal Medicine, Florida Hospital Network, Orlando, FL
1996-1998	Director, Fetal Diagnostic Center, Reno, NV
1998-2000	Medical Director and Founder, Obstetrix NV unit of Pediatrics (NYSE: PDX)
2000-2001	President, CEO and Co-Founder, SulphCo (AMEX: SUF)
2000-2002	President, CEO and Founder, NuStem (now Corduse) largest Stem cell company in US
2003-present	Managing Director and Founder, PetroSonics LLC.

CERTS AND LICENSES:

Not currently practicing

FLEX  
American Board of Obstetrics/Gynecology 1991  
Maternal-Fetal Medicine 1992  
Nevada Medical License #7851  
Virginia Medical License #0101038902  
Florida Medical License #ME-0056561  
Connecticut (inactive)

SCIENTIFIC ORGANIZATIONS:

American College Obstetrics and Gynecology  
Society of Perinatal Obstetricians  
New England Perinatal Society  
Fertility Society  
Duval Medical Society  
Orange County Medical Society  
International Society of Ultrasound in  
Obstetrics and Gynecology

**PUBLICATIONS**Journals

1. Hobbins JC, Romero R, Grannum P, Berkowitz RL, **Cullen MT**, Mahoney MJ: The Antenatal Diagnosis of Renal Anomalies with Ultrasound. 1. Obstructive Uropathy, Am Journal Obstet Gyn 148:868, 1984
2. Romero R, **Cullen MT**, Jeanty P, Reece EA, Venus L, Hobbins JC: The Antenatal Diagnosis of Renal Anomalies with Ultrasound. 111. Renal Agenesis. Am J Obstet. Gyn. 151: 38, 1985

3. Romero R, **Cullen MT**, Jeanty P, Reece EA, Venus L, Hobbins JC: The Antenatal Diagnosis of Renal Anomalies with Ultrasound. 111. Renal Agenesis. Am J Obstet.Gyn. 151: 38, 1985
4. Cope JA, **Cullen MT**, Green JJ, Mahoney MJ, Hobbins JC: The Frequency of Anueploidy in Prenatally Diagnosed Congenital Heart Disease: An Indication for Fetal Karyotyping, Am J Obstet. Gyn. 158:409, 1988
5. Shapiro BS, **Cullen MT**, Taylor K, DeCherney AH: Transvaginal Ultrasound in the Diagnosis of Ectopic Pregnancy, Fertile Sterile: 50:425, 1988
6. Reece EA, Rotmensch S, Whetham J, **Cullen MT**: A Viewpoint of the Future of Prenatal Diagnosis. 1991. Feb; 11(2); 125-8
7. **Cullen MT**, Green JJ, Reece EA, Hobbins JC: Evaluation of the First Trimester Embryo: A Comparison of Abdominal and Transvaginal Ultrasound. J Ultrasound Med 8:565; 1989
8. **Cullen MT**, Reece EA, Whetham, J, Hobbins JC: Embryoscopy: Description and Utility of a New Technique. Am J Obstet. Gyn. 162; 82: 1990
9. Reece EA, Gabrelli S, **Cullen MT**, Hobbins JC: Recurrent Adverse Pregnancy Outcome and the Role of Anti-Phosolipid Antibodies. Am J Obstet. Gyn.: 163:162; 1990
10. **Cullen MT**, Green JJ, Whetham J, Hobbins JC: Ultrasound Detection of Anomalies in the First Trimester. Am J Obstet. Gyn; 1990: 163:162-163
11. Viscorello, RR, **Cullen MT**. Fetal Blood Sampling in Human Immunodeficiency. Virus-Seropositive Women Before Elective Midtrimester Termination of Pregnancy. Am J Obstet. Gyn.; 1992 Oct; 167: 1075-9
12. **Cullen MT**, Gabrelli S, Green JJ, Hobbins JC: Diagnosed and Significance of Cystic Hygromas in the First Trimester. Prenatal Diagnosis 1990: 10:643-652
13. **Cullen MT**, Athensiotis A, Green JJ, Hobbins JC: Intravesicular Pressure and the Prune Belly Syndrome. Fetal Therapy 1990: 4; 73-77
14. **Cullen MT**, Athenosiotis A, Green JJ, Hobbins JC: Prenatal Diagnosis of Anterior Parietal Encephalocele With Transvaginal Sonography. Obstet Gyn. 75:489, 1990
15. Copel JA, **Cullen MT**, Grannum PA, Hobbins JC. Invasive Fetal Assessment in the Antepartum Period. Obstet and Gyn Clinics of North America 1990:17; 201

16. **Cullen MT**. Embryoscopy. *VJOG* 2;5, 1989
17. Fogel M, Copel JA, **Cullen MT**, Hobbins JC. Congenital Heart Disease and Fetal Thoacoabdominal Anomalies. Association in Utero and the Importance of Cytogenetics. *Am J Perinatology* 1991 Nov; 8(6) 411-6
18. Sanchez-Ramos L, Jones D, **Cullen MT**,: Urinary Calcium as an Early Marker for Preeclampsia. *Obstet Gyn.* 1991 May 77(5) 685-8
19. **Cullen MT**, Whetham J, Viscorello R et al.: Transcervical Endoscopic Verification of Congenital Anomalies in the Second Trimester. *Am J Obstet. Gyn.*; 1991 July, 165(1) 95-7
20. **Cullen MT**, Green JJ, Sanchez-Ramos L, et al.: Ultrasound in the Detection of aneuploidy in the First Trimester. *J Ultrasound Med.* 1995 Aug. 14 (8); 559-63
21. **Cullen MT**, Whetham J, Thompson R, Sanchez-Ramos L,: Embryoscopic Access to the Fetal Circulation: A Technique for Genetic Therapy. *Am J Obstet., Gyn.* 1996 Submitted.
22. **Cullen MT**, Green JJ, Sanchez-Ramos L, Hobbins JH,: Auricular Index. A New Marker: The Prenatal Diagnosis of Low Set Ears. In Revision.
23. **Cullen MT**, Reece EA: The Changing Presentation of Diabetic Ketoacidosis During Pregnancy. *J. Mat. Fetal Med.* Submitted 1996.
24. **Cullen MT**, Shama F, Copel JA, Hobbins JC: Prenatal Diagnosis of Ambiguous Genitalia and Mullerian Tube Remnant in a Male Psuedohermapherdite. Submitted, *Int. J Obstet. Gyn.*

#### **Scientific Abstracts Presented**

1. Copel JA, **Cullen MT**, Green JJ, Mahoney MN, Hobbins JC: The Frequency of Aneuploidy in Prenatally Diagnosed Congenital Heart Disease: An Indication for Fetal Karyotyping. Presented at the Society of Perinatal Obstetricians. Lake Buena Vista, FL 1987.
2. **Cullen MT**, Copel JA, Green JJ, Hobbins JC, Kleinman CS: The Association Congenital Heart Disease and Aneuploidy in Prenatally Diagnosed Malformations: The Role of Fetal Echocardiography. Presented at the New England Perinatal Society Annual Meeting, Woodstock, VT, 1988.

3. **Cullen MT**, Reece EA, Whetham J, Hobbins JC: Embryoscopy: Description and Utility of a New Technique. Presented at the Society of Perinatal Obstetricians. New Orleans, 1989.
4. **Cullen MT**, Green JJ, Reece EA, Hobbins JC: Evaluation of the First Trimester Embryo: A Comparison of Abdominal and Vaginal Sonography. Presented at the Society of Perinatal Obstetricians. New Orleans, 1989.
5. **Cullen MT**, Reece EA: The Presentation of Diabetic Ketoacidosis in Pregnancy. Presented at the Society of Perinatal Obstetricians. New Orleans, 1989.
6. **Cullen MT**, Reece EA, Whetham J, Hobbins JC: A Comparison of Embryoscopy and Transvaginal Ultrasound for Prenatal Diagnosis in the First Trimester. Presented at the Society of Perinatal Obstetricians. Houston, TX 1990.
7. Viscorello R, **Cullen MT**, Hobbins JC: A Comparison of Embryoscopy and Fetal Blood Sampling Prior to Elective First-Trimester Termination of Pregnancy in Human Immunodeficiency Virus-Seropositive Women. Presented at the Society of Perinatal Obstetricians. Houston, TX 1990.
8. **Cullen MT**, Green JJ, Gabriella S, Whetham J, Hobbins JC: the Antenatal Diagnosis of Congenital Anomalies in the First Trimester. Presented at the Society of Perinatal Obstetricians. New Orleans, 1989.
9. **Cullen MT**, Green JJ, Gabriella S, Scioscia A, Rizzo N, Hobbins JC: Cystic Hygroma Diagnosed in the First Trimester: The Varied Morphologic Appearance and Association of Aneuploidy. Presented at the Society of Perinatal Obstetricians. New Orleans, 1989.
10. **Cullen MT**, Reece EA, Whetham J, Viscorello R, Hobbins JC: Transcervical Endoscopic Verification of Prenatally Diagnosed Anomalies Prior to Second Trimester Pregnancy Termination. Presented at the Society of Gynecologic Investigation. San Diego, CA 1989.
11. **Cullen MT**, Sciocia AS, Green JJ, Mahoney MJ, Hobbins JC: Ultrasound in the Detection of Anueploidy in the First Trimester. Presented at the American Genetics Society annual meeting. New Orleans, LA 1988.
12. **Cullen MT**, Sciocia A, Green JJ, Mahoney MJ, Hobbins JC: Anueploidy in the First Trimester. Presented at the International Society of Obstetrics and Gynecology. London, England. January 1991.
13. Reece EA, Whetham J, **Cullen MT**, Hobbins JC: Gaining Access to the Embryonic Fetal Circulation Via First Trimester Endoscopy: A New Viewpoint for

Prenatal Diagnosis and Treatment. Presented at the Society of Perinatal Obstetricians. San Francisco, CA 1991.

14. **Cullen MT**, Whetham J, Sanchez-Ramos L. Embryoscopic Access to the Fetal Circulation: A Technique for Genetic Therapy. Presented at the Society of Perinatal Obstetricians. San Francisco, CA 1991.

15. **Cullen MT**, Whetham J, Sanchez-Ramos L: Embryoscopic Observation of Early Amniocentesis. Presented at the Society of Perinatal Obstetricians. San Francisco, CA 1991.

16. **Cullen MT**, Green JJ, Sanchez-Ramos L. Confirmation of Sonographically imaged Anatomy in the First Trimester Presented at the Society of Perinatal Obstetricians. San Francisco, CA 1991.

17. Sanchez-Ramos L, Jones D, **Cullen MT**. Urinary Calcium as an Early Marker for Preeclampsia. Presented at the Society of Perinatal Obstetricians. San Francisco, CA 1991.

18. Sanchez-Ramos L, Robenack P, **Cullen MT**. Prevalence of Pulmonary Complications in Obstetrical Patients with Acute Pylonephritis. Presented at the Society of Perinatal Obstetricians. San Francisco, CA 1991.

### **Other Presentations**

1. **Cullen MT**. New Trends in Prenatal Diagnosis. Presented at the Perinatal Resources Annual Meeting. Orlando, FL 1990.

2. **Cullen MT**. New Trends in First Trimester Prenatal Diagnosis. Presented at Seminars in Perinatology's Annual Meeting. Orlando, FL 1991.

3. **Cullen MT**. New Trends in Invasive Fetal Diagnosis and Treatment. Presented at Seminars in Perinatology's Annual Meeting. Orlando, FL 1991.

4. **Cullen MT**. Transvaginal Ultrasound. Seminars in Perinatology's Annual Meeting. Orlando, FL 1991.

5. **Cullen MT**. New Trends in Prenatal Diagnosis. Presented at the University of Florida Annual Obstetrics and Gynecology Update. Orlando, FL 1990.

6. **Cullen MT**. The Human Body 2000 CBS Special Presentation. Contributing Editor

### **Books and Chapters**

1. **Cullen MT**, Reece EA, Hobbins JC: The Early Human; Morphology and Prenatal Diagnosis. In Preparation.

2. **Cullen MT.** Embryoscopy: In Obstetrical and Gynecologic Ultrasound. Campbell S, Chervaneck F,: Little Brown. New York, NY. In Press 1991.
3. **Cullen MT.** Transvaginal Ultrasound in Early Prenatal Diagnosis. In Obstetrical Ultrasound Volume 1. Oxford Press. In Press

### **Other Involvement**

Past member, Genetics Sub-committee, State of Nevada Maternal Child Health Department