

**JOHN K. HEMPHILL, PH.D.**  
Texas A&M University - Commerce  
Biological and Environmental Sciences  
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**Career Objective:** Teaching/basic and applied research in a team-oriented environment.

### **Specialized Experience:**

- **Research:** Genetic engineering of agricultural crops for specialty chemicals, seed, feed and agrifood markets. **Expertise:** Plant physiology, biochemistry, molecular biology and *in vitro* cell-tissue techniques; plant regeneration and gene transfer; miniprep of pDNA and its incorporation into *E. coli* and *Agrobacterium tumefaciens* (freeze-thaw, electroporation and tri-parental mating); genomic DNA extraction, purification and quantification; PCR and gel electrophoresis, gene transient expression with GUS assay, NPTII ELISA and Southern blot analyses; hydroponics; SDS-PAGE, GC, HPLC, UV-Vis spectroscopy, light microscopy, TEM, SEM, TLC and chromatography.
- **Project Management:** Interacted effectively in a research, business and market matrix. Managed, trained and motivated staff members at all levels in plant/gene transformation, cell biology and biochemistry.
- **Business Development:** Defined, communicated and managed the business and product planning processes for the agriproduction, agriprocessing, food manufacturing and commercialization of eco-friendly safflower seeds and/or its health-related (high-oleic) oil, feed and agrifood products. Vertically integrated network within agricultural biotechnology and agrifood industries related to soybean, cotton, corn, alfalfa and *Brassica*.
- **Computer at Home:** Windows MS 7, MS Office 2003, MS Word 2007, MS Excel, MS PowerPoint 2007, Adobe PhotoShop 7.0 and Word Perfect 6.

### **Professional Experience:**

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| <b>Teaching at Texas A&amp;M University, Commerce, TX</b><br>Adjunct - General Microbiology 254, Botany 1411,<br>Human Anatomy & Physiology I and Laboratory<br>in Commerce, TX                                          | Fall, 2015-present |
| <b>Teaching at Grayson College, Denison, TX</b><br>Adjunct - Advance General Biology I,<br>General Biology I and Laboratory (emphasized cell biology),<br>Human Anatomy & Physiology I and Laboratory<br>in Denison, TX. | 2009-Summer, 2015  |
| <b>Teaching at Kansas City Kansas Community College</b><br>Adjunct - General Biology I and Laboratory (section in Botany),<br>Environmental Sciences and Laboratory<br>in Kansas City, KS.                               | 1992 – 1994        |

## JOHN K. HEMPHILL, PH.D.

### Grayson County College

Fall 2009-Summer 2015

Adjunct  
6101 Grayson Drive  
Denison, TX 75020

- Taught General Biology I and Human Anatomy & Physiology I (both lecture and lab).

### Arkansas State University, Jonesboro, AR

2005-2007

Arkansas Biosciences Institute (ABI)  
Research Associate  
Plant Transformation (Corn)

- Utilization of somatic embryogenesis/*Agrobacterium* transformation system to incorporate value-added genes into corn.
- Characterization of transgenics via Gus staining and DNA extraction followed by PCR and gel electroporation.
- Southern hybridization of HRGP gene in genomic DNA (B73 and AB) via Roche PCR DIG Kit.
- Management of in-house plasmid library into *E. coli* and *Agrobacterium* transformation by the freeze-thaw method.
- Management of the corn greenhouse; plant breeding of B73, A, B and BxA; and harvested seeds from mature plants.
- AB (selfed) provided the immature embryos for corn transformation.
- Assisted in writing NSF and USDA proposals; trained graduate students; wrote technical protocols and performed laboratory research and management duties; and presented data to faculty at ABI.

### Texas A&M University, College Station, TX

1999-2004

Department of Forest Sciences  
Research Associate  
Plant Transformation (Cotton)

- Organized an international research group (Prof. Dudy Bar-Zvi, a molecular biologist from Israel and Prof. C. Wayne Smith, a plant breeder for cotton and myself, a plant transformation specialist).
- Utilization of meristem-based/*Agrobacterium* transformation system to incorporate value-added genes into cotton (e.g., drought- and salt-tolerance).
- Developed and screened converted race stock accessions of upland cotton for salt-stress genes via seed germination (growth chamber) and seedling maturation (hydroponics in greenhouse). Assisted in the development of a seedling drought-tolerance system for upland cotton.
- Molecular characterization of transgenic sorghum/cotton by PCR and Southern hybridization.
- Authored white papers, technical protocols, research proposals, progress reports and scientific publications.

**Results at TAMU:** Updated a gene transformation system for cotton and provided seeds from putative transgenic plants (T0) to Prof. C. Wayne Smith at College Station (TX). **Raised** \$162,000 from The Cotton Foundation and TIE/TDA Program Board (TX).

## JOHN K. HEMPHILL, PH.D.

**University of North Texas, Denton, TX**  
Cottonseed Development Group  
Research Associate, Adjunct Professor

1994-1998

- Developed a meristem-based/*Agrobacterium* transformation system for cotton (patent).
- Technical liaison to outside groups.
- Authored white papers, executive summaries, primary market reports, technical protocols, research proposals, scientific publications and technology patents.

**Results at UNT:** Developed a gene transformation system for cotton. **Raised** \$408,100 from National Cottonseed Products Association, National Cotton Council, University of North Texas (Faculty Research Grant), University of North Texas (Research and Technology Development Office), Texas Higher Education Coordinating Board (Advance Technology Program) and NRI, USDA.

**Business Development** in Agricultural Biotechnology and Agribusiness  
**Kansas City Kansas Community College** in KC, KS  
Adjunct Instructor - Cell Biology and Environmental Science

1992 - 1994

***OilSeed Genetics; Santa Clara, CA***  
Founder and Business Manager

1989 - 1991

- Start-up company specializing in the agriproduction, agriprocessing and commercialization of eco-friendly safflower seeds and/or its health-related oil (high-oleic), feed and food products.
- Defined, authored, and communicated company's mission, business plans, feasibility studies, research proposals and project reports. Developed financial and pricing models for an eco-friendly safflower oil, which possessed two market-value benefits. The plants were grown without herbicides and pesticides and its seeds consisted of health-related oil (high-oleic).
- Identified and negotiated business development relationships with strategic partners and funding groups.
- Researched and communicated performance market research on edible-oil and meal markets; and researched and communicated competitive market analysis.
- Identified new developments in human physiology and nutrition in regards to specialty edible-oils and poultry products.

**Results:** Ecological-friendly seeds and its health-related safflower oil (high-oleic), which were available in the marketplace within two years.

## JOHN K. HEMPHILL, PH.D.

**Sungene Technologies Corporation; San Jose, CA**  
Scientist, Soybean Group Leader, Laboratory Manager

1982 - 1989

- Agribiotechnology Company specializing in genetic modification of agricultural crops. Products: Specialty chemicals and seeds from corn, soybean, *Brassica*, sesame and cotton.
  - \* Research: Organized, managed and collaborated on team-oriented projects designed to incorporate genetic changes in cereals and oilseeds through tissue culture techniques, mutagenic agents and gene transformation in somatic embryogenic systems. **Results:** Completed research contracts and in-house projects, patents and trade secrets involving regeneration systems.
  - \* Conceptualized, championed and managed a team-oriented project in soybeans using diversified storage protein germplasm, seed/storage protein analyses, and conventional plant breeding techniques, which developed value-added germplasm for the seed, feed, and food industries. **Results:** Seeds advanced to Sungene's field plant-breeding program.
  - \* Laboratory manager: GLPs within the cell biology department and mutagenesis laboratory. Group representative on company's safety committee involving issues regulated at local, state and federal levels. Authored a laboratory manual for handling potentially dangerous chemicals.
  - \* Presented in-house presentations and acted as technical liaison to outside groups. Tracked natural products derived from biological sources that possess pharmaceutical activity. Authored contract reports and in-house research reports, feasibility studies, primary market reports, SBIR (USDA/NSF) grants, patents and scientific publications. **Results:** Two company patents on soybean plant regeneration by somatic embryogenesis.

**USDA, ARS, WRRRC. Albany, CA**  
Post-doc Research Scientist

1980 - 1982

- New Focus: Biotechnology Group.
  - \* Development of plantlet regeneration systems for alfalfa, pea and drybean legumes.

### **Education:**

Post-doctoral Research Associate in Natural Products at Indiana University, Bloomington, IN.  
Ph.D. in Biology (Plant Physiology and Biochemistry). University of Houston, Houston, TX.  
M.S. in Botany (Botany, Plant/Cell Physiology). Kansas State University, KS

### **Professional Organizations:**

American Society of Plant Biologists

## JOHN K. HEMPHILL, PH.D.

### Plant Biotechnology & Gene-Plant Transformation

E-mail: [john.hemphill@tamuc.edu](mailto:john.hemphill@tamuc.edu)

#### Most Recent Publications:

- Hemphill, John K., Huseyin Basal and C. Wayne Smith. 2006. Screening method for salt tolerance in cotton. *Amer. J. of Plant Pathology*. 1 (1): 107-112.
- Basal, Huseyin, John K. Hemphill and C. Wayne Smith. 2006. Shoot and root characteristics of converted race stocks accessions of upland cotton (*Gossypium hirsutum* L.) grown under salt stress conditions. *Amer. J. of Plant Pathology*. 1 (1): 99-106.
- Basal, H., Smith, C.W., Thaxton, P.A. and Hemphill, J.K. 2005. Seedling drought tolerance in upland cotton (*Gossypium hirsutum* L.). *Crop Science* 45: 766-771.
- Basal, H., Demiral, M.A. and Hemphill, J.K. 2004. Soil salinity as an ecological problem and salt tolerance of cotton (*Gossypium hirsutum* L.). *Journal of Balkan Ecology* 7 (4): 349-361.
1. Li, H., J. Luo, J.K. Hemphill & J.H. Gould. 2001. A high efficiency DNA mini-preparation procedure for cotton. *Plant Mol. Biol. Rep.* 19: 1-5.
  2. Luo, J., J.M. Arriaga, H. Li, J.K. Hemphill, N. Keller, T. Isakeit & J.H. Gould. Transformation of TAES cotton for disease resistance. 2000 Cotton Physiology Conference (Beltwide Cotton Conferences). January 4-8. San Antonio, TX.
  3. Chapman, K.D., Hemphill, J.K. and Maier, C. 1997. A rapid *in vitro* regeneration scheme of cotton plants compatible with *Agrobacterium*-mediated transformation. Issued to University of North Texas. WO 97/43430.
  4. Hemphill, J.K., *et al.* Rapid *in-vitro* Plantlet regeneration scheme for cotton (*Gossypium hirsutum* L.). *Plant Cell Reports* 17: 273-278. 1998.
  5. Hemphill, J.K. & K.D. Chapman. 1997. Plantlet regeneration coupled with *Agrobacterium* mediated Transformation. Beltwide Cotton Conferences. New Orleans, Louisiana. January 6-10. Pp. 456-457.
  6. Graves, A.J., J.K. Hemphill & R. Ram. 1991. Somatic embryogenesis in Oilseed *Brassica*. Procedure of GCIRC Eighth International Rapeseed Congress 6: 1801-1808.
  7. Wilcox, A. & J.K. Hemphill. Originally filed as United States Patent on Sept. 21, 1987: "An Improved Method for the Routine Regeneration of Soybean (*Glycine max*) Commercial Cultivar *Williams* from Immature Embryo-derived Callus." Withdrawn and converted to Trade Secret (January, 1989).
  8. Hemphill, J.K. & C.A. Warshaw. United States Patent: "Process for Regenerating Soybean." Issued to: Sungene Technologies Corporation. June 6, 1989. Patent Number: 4837152.
  9. Hemphill, J.K. & E.J. Eikenberry. Letters Patent, Commonwealth of Australia: "Process for Regenerating Soybean." Issued to: Sungene Technologies Corporation. March 10, 1989. Patent Number: 578298.
  10. Hemphill, J.K. & E.J. Eikenberry. United States Patent: "Process for Regenerating Soybean." Issued to: Sungene Technologies Corporation. August 4, 1987. Patent Number: 4684612.
  11. Hemphill, J.K. & A.C. Olson. 1981. Alfalfa plantlet regeneration. Given at the Meetings of the American Society of Plant Physiologists at Quebec, Canada. Pp. 118. June 14 - 16.