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DR. GLORIA ANGÉLICA  
GONZÁLEZ HERNÁNDEZ

# DR. GLORIA ANGÉLICA GONZÁLEZ HERNÁNDEZ

## Professor

Department of Biology  
Division of Natural and Exact Sciences  
University of Guanajuato  
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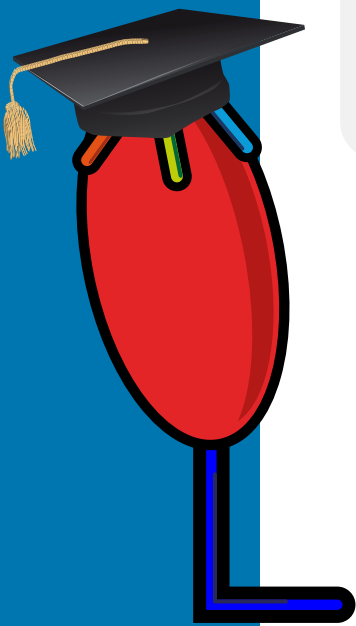
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## 1. Academic Degrees

### Bachelor's degree: Biochemical Engineer

Instituto Tecnológico de Celaya  
Celaya, Gto., Mexico  
1980

### Master in Sciences Biology

University of Guanajuato, Mexico  
1984

### Doctorate in Sciences Biology

University of Guanajuato, Mexico  
1988

## 2. Postdoctoral

### Center for Research and Advanced Studies of the IPN

Campus Irapuato  
Department of Genetic Engineering  
Laboratory of Dr. Luis Herrera Estrella  
June 1988 to December 1990  
Irapuato, Gto. Mexico

### University of Salamanca

Faculty of Biology  
Department of Microbiology and Genetics  
Dr. José Luis Revuelta Doval's Laboratory  
April 1991 to December 1992  
Salamanca, Spain

### Julius Kühn-Institut Federal Research Center for Cultivated Plants

Institute for Biological Control  
Laboratory of Dr. Andreas Leclerque  
April-July 2011  
Darmstadt, Germany



### 3. scientific publications

Cervantes Quintero KY, Padilla Guerrero IE, Torres Guzmán JC, Villa Martínez BG, Valencia Félix A, **González Hernández GA. 2020.** Members of the nitronate monooxygenase gene family from *Metarhizium brunneum* are induced during the process of infection to *Plutella xylostella*. **Applied Microbiology and Biotechnology**, <https://doi.org/10.1007/s00253-020-10450-0>, published online February 15, 2020.

**González Hernández GA**, Padilla Guerrero IE, Martínez Vázquez A, Torres Guzmán JC. Virulence factors in the entomopathogen genus *Metarhizium*. **Curr Protein Pept Sci. 2020 Jan 15.** DOI: 10.2174/1389203721666200116092407. [Epub ahead of print].

Jorge Contreras Garduño, Texca T. Méndez López, Anaïd Patiño Morales, **Gloria A. González Hernández**, Juan C. Torres Guzmán, Indrikis Krams, Luis Mendoza Cuenca, Gloria Ruiz Guzmán. **2019.** The costs of the immune memory within generations. **The Science of Nature**, vol. **106**, article number **59**. DOI:10.1007/s00114-019-1657-2.

Rosa Angélica Rangel Porras, Sharel P. Díaz Pérez, Juan Manuel Mendoza Hernández, Pamela Romo Rodríguez, Viridiana Alejandre Castañeda, Marco I Valle Maldonado, Juan Carlos Torres Guzmán, **Gloria Angélica González Hernández**, Jesús Campos García, José Arnau, Víctor Meza Carmen, and J. Félix Gutiérrez Corona. **2019.** Alcohol dehydrogenase 1 participates in the Crabtree effect and connects fermentative and oxidative metabolism in the Zygomycete *Mucor circinelloides*. **J. Microbiol**, **57:606-17**, DOI 10.1007/s12275-019-8680-z.

Héctor Medina Gómez, Mónica Farriols, Fernando Santos, **Angélica González Hernández**, Juan Carlos Torres Guzmán, Humberto Lanz, Jorge Contreras Garduño. **2018.** Pathogen produced catalase affects immune priming: A potential pathogen strategy. **Microbial Pathogenesis** **125:93-95**. DOI 10.1016/j.micpath.2018.09.012

Héctor Medina, Galia Adame, Angélica Hernández Quintero, **Angélica González**, Juan Carlos Torres Guzmán, Humberto Lanz Mendoza, Jorge Contreras Garduño. **2018.** The occurrence of immune priming can be species-specific in entomopathogens. **Microbial Pathogenesis**, **118:361-4**. DOI:10.1016/j.micpath.2018.03.063

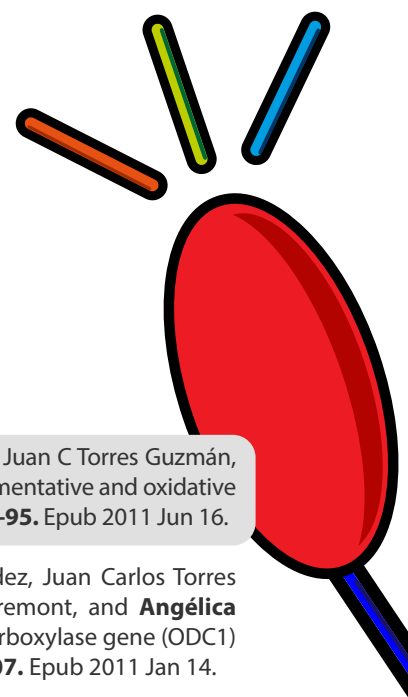
Castro Vargas C, Linares C, López A, Wrobel K, Torres Guzmán JC, **González A**, Lanz Mendoza H, Wrobel K, Contreras Garduño J. **2017.** Methylation on RNA: a potential mechanism related to immune priming within but not across generations. **Frontiers in Microbiology**; **8:473**. DOI: 10.3389/fmicb.2017.00473. eCollection 2017.

Nauru Idalia Vargas Maya, Gloria **Angélica González Hernández**, Israel Enrique Pailla Guerrero, Juan Carlos Torres Guzmán. **2017.** Overexpression of smORF YNR034W-A/EGO4 in *Saccharomyces cerevisiae* increases the fermentative efficiency of *Agave tequilana* Weber must. **J Ind Microbiol Biotechnol** **44:63-74**. DOI 10.1007/s10295-016-1871-2.

Olga Alicia Callejas Negrete, Juan Carlos Torres Guzmán, Israel Enrique Padilla Guerrero, Ulises Esquivel Naranjo, María Fernanda Padilla Ballesteros, Adriana García Tapia, Augusto Schrank, Eduardo Salazar- Solís, Félix Gutiérrez Corona, **Gloria Angélica González Hernández**,. **2015.** The *adh1* gene of the fungus *Metarhizium anisopliae* is expressed during insect colonization and required for full virulence. ISSN: 0944-5013, **Microbiological Research**, **172:57-67**. <http://dx.doi.org/10.1016/j.micres.2014.11.006>

Soto Urquieta, López Briones, Pérez Vázquez, Saavedra Molina, **González Hernández**, Ramírez Emiliano. **2014.** Curcumin restores mitochondrial functions and decreases lipid peroxidation in liver and kidneys of diabetic db/db mice. **Biological Research**, **47:74**.

Azul Martínez Vázquez, **Angélica González Hernández**, Angel Domínguez, Richard Rachubinski, Meritxell Riquelme, Patricia Cuellar Mata, Juan Carlos Torres Guzman. **2013.** Identification of the transcription factor ZNC1, which regulates the yeast to hypha transition in the dimorphic yeast *Yarrowia lipolytica*. **PLOS ONE**, **8 (6) 1-16**. e66790, [www.plosone.org](http://www.plosone.org)



Alma R Corrales Escobosa, Rosa A Rangel Porras, Victor Meza Carmen, **Gloria A González Hernández**, Juan C Torres Guzmán, Kazimierz Wrobel, Katarzyna Wrobel, M. Isabel G Roncero. **2011**. Fusarium oxysporum Adh1 has dual fermentative and oxidative functions and is involved in fungal virulence in tomato plants. **Fungal Genetics and Biology, 48(9):886-95**. Epub 2011 Jun 16.

Jaime Madrigal Pulido, Israel Padilla Guerrero, Isaura de J. Magaña Martínez, Briseida Cacho Valadez, Juan Carlos Torres Guzman, Eduardo Salazar Solis, J. Felix Gutierrez Corona, Augusto Schrank, Francisco Jiménez Bremont, and **Angélica González Hernández**. **2011**. Isolation, characterization and expression analysis of the ornithine decarboxylase gene (ODC1) of the entomopathogenic fungus, Metarhizium anisopliae. **Microbiological Research, 166(6):494-507**. Epub 2011 Jan 14.

**Gloria Angélica González Hernández**, Juan Carlos Torres Guzmán, J. Félix Gutiérrez Corona y Roberto Zazueta Sandoval. Alcohol deshidrogenasas fúngicas: papel fisiológico y potencial biotecnológico. **Enlace Químico, April 2010**. <http://quimica.ugto.mx/revista/index.html>

Israel Enrique Padilla Guerrero, Larissa Barelli, **Gloria Angélica González Hernández**, Juan Carlos Torres Guzmán, and Michael Bidochka. **2011**. Flexible metabolism in Metarhizium anisopliae and Beauveria bassiana: utility of the glyoxylate cycle during insect pathogenesis. **Microbiology, 157:199-208**. Epub Oct 7, 2010.

Hernández Morales CE, Padilla Guerrero IE, **González Hernández GA**, Salazar Solis E and Torres Guzmán JC. **2010**. Catalase overexpression reduces the germination time and increases the pathogenicity of the fungus Metarhizium anisopliae. **Applied Microbiology and Biotechnology, 87(3): 1033-44**. Epub April 2, 2010.

Juan Carlos Torres G. Eduardo Salazar Solís and **Angélica González H**. Búsqueda de alternativas ecológicamente amables para el control de plagas en la agricultura moderna: Metarhizium anisopliae como modelo de estudio. **[Ide@s CONCYTEG] Year 3, Num. 37:4- 9, July 3rd, 2008**. Folio Number 00000409. Rights reserved 04-2008-060212452800-102, ISSN:2007-2716.

Melesio Gutierrez Lomeli, Juan Carlos Torres Guzmán, **Gloria Angélica González Hernández**, Luis Alberto Cira Chávez, Carlos Pelayo Ortiz and Jose de Jesús Ramirez Córdova. **2008**. Overexpression of ADH1 and HXT1 genes in the yeast Saccharomyces cerevisiae improves the fermentative efficiency during tequila elaboration. **Antonie van Leeuwenhoek, 93(4):363-71**. Epub February 1, 2008.

Luis Alberto Cira, **Angélica González**, Juan Carlos Torres, Carlos Pelayo, Melesio Gutierrez and Jesus Ramirez. **2008**. Heterologous expression of Fusarium oxysporum tomatinase in Saccharomyces cerevisiae increases its resistance to saponins and improves ethanol production during the fermentation of tequilana Weber var. azul and Agave salmiana must. **Antonie van Lewenhoek 93 (3): 259-266**.

Ortiz Alvarado, R., **Gonzalez Hernandez G.A.**, Torres Guzman J.C. and Gutierrez Corona, J.F. **2006**. Transformation of Mucor circinelloides with autoreplicative vectors containing homologous and heterologous ARS elements and the dominant Cbx(r) carboxine-resistance gene. **Current Microbiology, 52: 178-181**.

R. A. Rangel Porras, V. Meza Carmen, G. Martinez Cadena, J.C. Torres Guzmán, **G.A. González Hernández**, J. Arnau and J.F. Gutierrez Corona. **2005**. Molecular analysis of a NADdependent alcohol dehydrogenase from the Zygomycete Mucor circinelloides. **Molecular Genetics and Genomics, 274: 354-363**.

Joel Ramírez Emiliano, **Angélica González Hernández** and Sergio Arias Negrete. **2005**. Expression of inducible nitri-oxide synthase mRNA and nitric oxide production during the development of liver abscess in hamster inoculated with Entamoeba histolytica. **Current Microbiology, 50: 299-308**.

Natividad Ramírez Ramírez, Jesús García Soto, **Angélica González Hernández** and Guadalupe Martínez Cadena. **1999**. The small GTP binding protein Rho is expressed differentially during spore germination of Phycomyces blakesleeanus. **Microbiology 145 (5): 1097-1104**.

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## 3. continue

Martínez Cadena G., Novoa Martínez G., **González Hernández A.**, and J. García Soto. **1995**. The GTP binding protein Gα is present in dormant spores and expressed differentially during spore germination of the fungus *Phycomyces blakesleeana*. **Microbiology**, **141**: 3149-3154.

**González Hernández GA**, L Herrera Estrella, V Rocha, I González Roncero and JF Gutiérrez Corona. **1997**. Biolistic transformation of the Zygomycete *Mucor circinelloides*. **Mycological Research**, **101(8)**: 953-956.

B. Dujon, ... **Angélica González**, ... et al. **1994**. Complete DNA sequence of yeast chromosome XI. **Nature**, **369**: 371-378.

German Bou, Pedro F. Esteban, Victoriano Baladron, **Gloria A. González**, Jesús García Cantalejo, Miguel Remacha, Antonio Jiménez, F. del Rey, Juan P.G. Ballesta and J.L. Revuelta. **1993**. The complete sequence of a 15,820 bp segment of *Saccharomyces cerevisiae* chromosome XI contains the UB12 and MPL1 genes and three new open reading frames. **Yeast**, **9**: 1349-1354.

María José Buitrago, **Gloria A. González**, Julia E. Saiz and José L. Revuelta. **1993**. Mapping of the RIB1 and RIB 7 genes involved in the biosynthesis of riboflavin in *Saccharomyces cerevisiae*. **Yeast**, **9**: 1099-1102.

## 4. patents

### International patent, 1992

Revuelta J.L. M.A. Santos, J.J. García Ramírez, G.A. **González Hernández** and M. J. Buitrago. "Riboflavin-Synthese in hefen". O.Z. 0050 / 43967. BASF. Aktiengesellschaft. **Europe, USA and Japan.**

### National Patent, 2013, Patent Number 311248

**González Hernández GA**, Torres Guzmán JC, Salazar Solís E, Gamero Posada EC and Martínez Vazquez MA. "Methods for obtaining transformed strains of *Metarhizium anisopliae* with resistance to ultraviolet light A (UVA)". **Mexican Institute of Industrial Property.**

### Patent in process, 2015, No. MX / a / 2015/016199

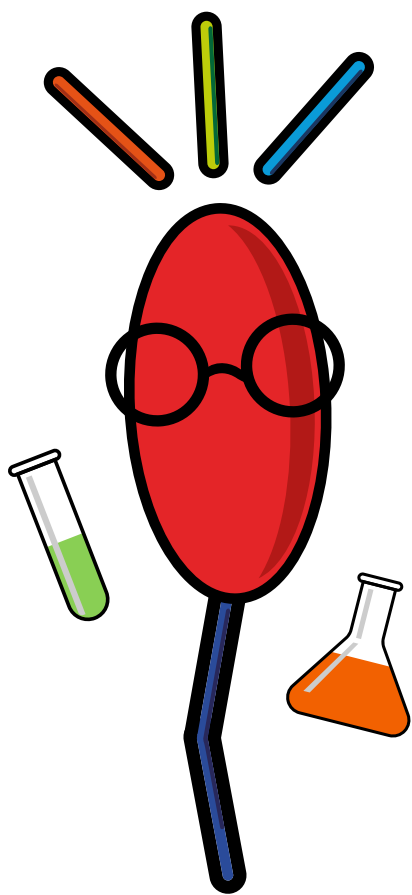
Juan Carlos Torres Guzman, **Gloria Angélica González Hernández**, Israel Enrique Padilla Guerrero, Adriana García Tapia, Iván Horacio Piña Torres, Francisco Eduardo López Medrano, Nauru Idalia Vargas Maya, María del Rosario Ramírez Zúñiga. *Yeast for high gravity fermentations in agave juice with high performance in the production of ethanol.* **Mexican Institute of Industrial Property.**

### Patent in process, 2016, No. MX / a / 2016/016813

Main Inventors: **Gloria Angélica González Hernández**, Juan Carlos Torres Guzmán. Coinventors Israel Enrique Padilla Guerrero, Victor Manuel Garcia Vera, Nauru Idalia Vargas Maya, Maria del Rosario Ramirez Zúñiga, Adriana Garcia Tapia. *Yeast with high content of organic selenium mainly as selection methionine (SeMet).* **Mexican Institute of Industrial Property.**

### National Patent, 2018, Patent Number 358193

Torres Guzmán JC, **González Hernández GA**, Salazar Solís E, Salas Araiza D, Ortiz Meza A, García Tapia A, Lopez Macías PI. *Method to increase the mass production of conidia of the entomopathogen *Metarhizium anisopliae*.* **Mexican Institute of Industrial Property.**



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## 5. Books

Torres Guzmán JC, **González Hernández GA** y López Andrade GA. 2007. **Microbiología: Conocimiento y manejo de microorganismos.** Universidad de Guanajuato. 1st Ed. ISBN 978-968- 864-502-4.

**González Hernández GA**, Olmedo Monfil VG, López Andrade A G, Torres Guzmán J C, Padilla Guerrero IE, Gutiérrez Corona JF. 2020. **Genética, Experimentación básica.** Universidad de Guanajuato. 1st Ed. ISBN 978-607-441-709-8.

## 6. Book Chapters

Juan Carlos Torres Guzmán, Eduardo Salazar Solís, **Gloria Angélica González Hernández. Control Biológico y Manejo de la Langosta centroamericana (Schistocerca piceifrons WALKER).** Tipificación y Mejoramiento genético de cepas de Metarhizium anisopliae. Eds. Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria del Instituto Tecnológico de Cd. Victoria 2007. ISBN 978-968-5384-08-7. Pp108-112.

**Gloria Angélica González Hernández**, Eduardo Salazar Solís, Mónica Garcia Esquivel and Juan Carlos Torres Guzmán. **Diversidad de cepas mexicanas del hongo patógeno de insectos Metarhizium anisopliae.** En LA BIODIVERSIDAD EN GUANAJUATO, Estudio de Estado. Eds. Comisión Nacional para el Conocimiento y Uso de Biodiversidad (CONABIO), State Institute of Ecology of Guanajuato. 2012. ISBN: 978-607-7607-80-9.

**Gloria Angélica González Hernández**, Eduardo Salazar Solís, Manuel Darío Salas, Claudia Erika Morales Hernández, Cecilia Gamero Posada, Ma. Azul del Rocío Martínez Vázquez and Juan Carlos Torres Guzmán. **Mejoramiento genético del hongo patógeno de insectos Metarhizium anisopliae.** En LA BIODIVERSIDAD EN GUANAJUATO, Estudio de Estado. Eds. Comisión Nacional para el Conocimiento y Uso de Biodiversidad (CONABIO), State Institute of Ecology of Guanajuato. 2012. ISBN: 978-607-7607-80-9.

## 9. Collaboration with the Productive Sector

### -Tequilera Corralejo, S.A. de C.V.

Technical advice and collaborative projects since 2010.

### -Innovaciones Biotecnológicas, S.A. de C.V.

Technical advice and collaborative projects since 2010.

### -Industrializadora de Levaduras Mexicanas, S.A. de C.V.

Technical advice and collaborative projects since 2013.

### -Comité Estatal de Sanidad Vegetal de Guanajuato A.C.

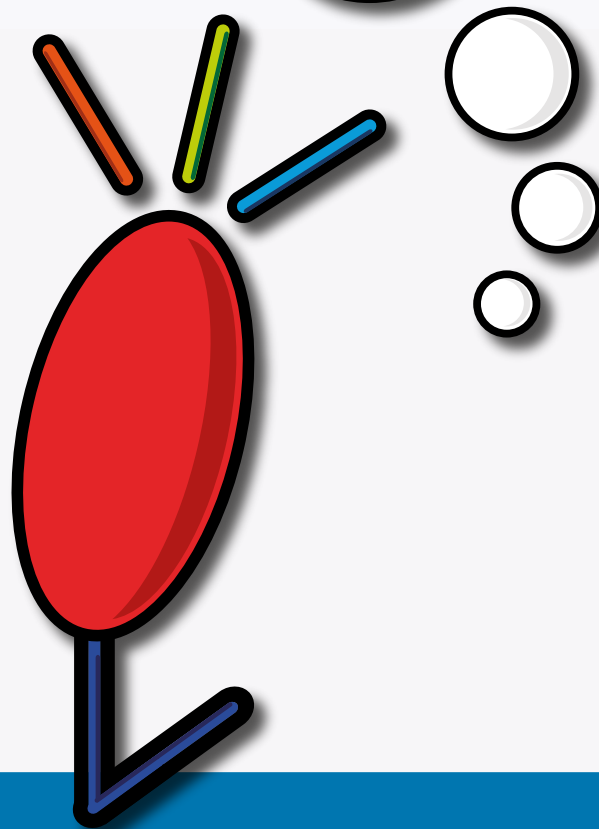
Technical advice and collaborative projects since January 2018.

### -Biokemia Mexicana S.A. de C.V.

Collaborative project since September 2019.



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