Part A. PERSONAL INFORMATION

CV date	22/04/2022

First and Family name	Ana Alcudia Cruz		

A.1. Current position

Name of University/Institution	UNIVERSITY OF SEVILLE		
Department	ORGANIC AND MEDICINAL CHEMISTRY		
Address and Country	Prof. García González nº 2. SEVILLE. SPAIN		
Phone number		E-mail	aalcudia@us.es
Current position	Associated Professor	From	07-13-2011
Key words	Polymer Synthesis, Medicinal Chemistry, Natural Product Synthesis, Nanoparticles, Macromolecules, New Materials		

A.2. Education

PhD in Organic Chemistry	University of Seville	1999
Bachelor Degree in Chemistry	University of Seville	1994

A.3. JCR articles, h Index,
JCR articles: 40 (Q1), 4 (Q2), 10 book chapter with ISBN. 3 patents.
H index: 18
Six-year research periods ``Sexenios de investigación´´ CNEAI: 3
Total number of publications: 65
Total citations: 741 (Scopus), 900 (Google academic)
Citation average/year: 44 (Scopus)

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

My research training begins when I graduated in Chemical Sciences from the University of Seville in 1994. At that time, I joined the Department of Organic and Medicinal Chemistry of the Faculty of Pharmacy at the University of Seville, within the Research Group "Stereochemistry and Asymmetric Synthesis" with Dr. Felipe Alcudia González as PI. My PhD Theses titled, "Optimally Pure N-sulfinilimines: Application to the Synthesis of Aziridines and Aminoalcohols", was directed by Dr. José Luis García Ruano (Autonomus University of Madrid) and Dr. Inmaculada Fernández Fernández (University of Seville) thanks to a predoctoral contract with funding from The Pharmaceutical Company, Eli.Lilly, to obtain qualification of Outstanding "cum laude" and Extraordinary Doctorate Award (Best PhD) from University of Seville in 1999.

From 1999-2002, I enjoyed a postdoctoral stay at Emory University (Atlanta, USA) as a Postdoctoral Researcher, under the supervision of Dr. Lanny Liebeskind, with the aim of developing new synthesis of molybdenum complexes and studying their application to natural products of biological interest. This postdoctoral stay was sponsored by NATO with a junior postdoctoral and an MEC-Fulbright postdoctoral fellowships. In 2002, I returned to Spain as a Junior Researcher at Johnson and Johnson Pharmaceuticals Laboratories, PRDES (Toledo), where I worked on developing new potential CNS drugs. After half a year, I moved as Senior Researcher to the Biotechnological Pharmaceutical Company PharmaMar S.A. in Madrid, as a part of the synthesis division to prepare not only new derivatives of the drug marketed as Yondelis®, but also first approaches to Zepzelca ®, which reached FDA approval in EEUU in 2020 for lung cancer. Later, in 2004, I enjoyed an I3P postdoctoral research contract at the CSIC (Madrid) and towards the end of this year, I obtained a -`` Ramón y Cajal´´- contract at

the University of Seville, to work in the Asymmetric and Catalysis Synthesis group. Since 2011, my academic rank is Associated Professor in Organic and Medicinal Chemistry.

Currently, since September 2014, I have been part of the Carbohydrate and Polymer Research Group at University of Seville (FQM-135). Our goals deal with the development of new biodegradable materials from renewable sources such as carbohydrates that allow novel medicinal applications.

The results of my research activity are summarized in 65 scientific publications, 40 (Q1) and 4 (Q2). In addition, I have participated with 45 posters in Scientific Congresses, and I am the author of an international patent and 5 book chapters in global publishing companies such as Wiley-VCH, Springer or Jai Press Inc. Also, I have participated as a collaborating researcher in 1 international (American), 5 national projects and 13 from the autonomous government in the framework of Projects of Excellence. I have been PI of the project concerning the Ramón y Cajal Contract (2004-2009), 3 projects from Plan Propio de Investigación (University of Seville) and **PI of the projects PID2019-109371GB-I00**, from Ministerio de Ciencia y Tecnología starting from 1/06/20 to 31/05/2023 (120.000 Euros) and of the project Feder Andalucía **US-1380878** (58.000 Euros). Since February 2022, I am the responsible for FQM-408 group from Junta de Andalucía.

Since 2012, I belong to the ANEP bank of evaluators, as a research expert, with a total of 23 projects evaluated, and the DEVA bank of evaluators, from regional government in Andalucía, with 12 projects evaluated and an International Peer-Review Assessment of Large Research Infrastructures of the Czech Republic in 2021.

Part C. RELEVANT MERITS

C.1. Publications (including books).

Only From 2016-2022 april: 20 total publications, 18 (Q1), 2 (Q2)

1- *Latest Trends in Surface Modification for Dental Implantology: Innovative Developments and Analytical Applications. Pharmaceutics. DOI: 10.3390/pharmaceutics14020455.* ***2022.***
2- *Bioactive Bilayer Glass Coating on Porous Titanium Substrates with Enhanced Biofunctional and Tribomechanical Behavior. Coatings. DOI: 10.3390/coatings12020245.* ***2022.***
3- *Assessing the Biofortification of Wheat Plants by Combining a Plant Growth-Promoting Rhizobacterium (PGPR) and Polymeric Fe-Nanoparticles: Allies or Enemies? Agronomy. DOI: 10.3390/agronomy12010228.* ***2022.***
1- *Native Chilean berries preservation and in-vitro studies of a polyphenol highly antioxidant extract from maqui as a potential therapeutic agent against Inflammatory Bowel Disease*
T. Ortiz, F. Argüelles-Arias, B. Begines, J.M. García Montes, A. Pereira, M. Victoriano, V. Vázquez-Román, J.L. Pérez Bernal, R. Callejón, M. de Miguel, A. Alcudia*. Antioxidants, May* ***2021****.*
2-*Biofunctionalization of Porous Ti Substrates Coated with Ag Nanoparticles for Potential Antibacterial Behavior. J. Gaviria, A. Alcudia, B. Begines, A. M. Beltrán, J. A. Rodríguez-Ortiz, P.Trueba, J. Villarraga, Y. Torres. Metals, April* ***2021****.*
3-*Environmental Impact of Nanoparticles' Application as an Emerging Technology: A Review G Martínez, M Merinero, M Pérez-Aranda, EM Pérez-Soriano, T Ortiz, B. Begines, A. Alcudia. Materials 14 (1), 166,* ***2021****.*
4-*Synthesis and deposition of silver nanoparticles on porous titanium substrates for medical applications. Gaviria, J., Alcudia Cruz, A., Begines, B., Beltrán Custodio, A. M., Villarraga, J, et.al. Surface and Coatings Technology.* ***2021****. Vol. 406. Pag. 126667,1-126667,9. doi.org/10.1016/j.surfcoat.2020.126667*
5- *Polymeric Nanoparticles for Drug Delivery: Recent Developments and Future Prospects.–1393). B. Begines, T. Ortiz, M. Pérez-Aranda, G. Martínez, M. Merinero, F. Argüelles-Arias, A. Alcudia. Nanomaterials, 10, 1403.* ***2020****. DOI:10.3390/nano10071403.*
6- *Biofunctional and Tribomechanical Behavior of Porous Titanium Substrates Coated with a Bioactive Glass Bilayer (45S5–1393). A. M. Beltrán, B. Begines, A. Alcudia, J. A. Rodríguez-*

Ortiz, Y. Torres. ACS Appl. Mater. Interfaces, ***2020****. https://doi.org/10.1021/acsami.0c07318. DOI: 10.1021/acsami.0c07318.5*

7- *Dynamics and numerical simulations to predict empirical antibiotic treatment of multi-resistant Pseudomonas aeruginosa infection. J. Lopez-de-la-Cruz, M. Perez-Aranda, A. Alcudia, B. Begines, T. Caraballo, E. Pajuelo, P. Ginel, Communications in Nonlinear Science & Numerical Simulation, 91 (****2020****) 105418.*

8- *Porous titanium substrates coated with a bilayer of bioactive glasses. A. Beltrán, A. Alcudia, B. Begines, J.A: Rodriguez-Ortiz, Y. Torres. Journal of Non-Crystalline Solids 544:120206,* ***2020****. doi: 10.1016/j.jnoncrysol.2020.120206.*

9- *Poliphenolic Maqui Extract as a Potential Nutraceutical to Treat TNBS_Induced Chron´s Disease by the Regulation of Antioxidant and Anti-Inflamatory pathways. T. Ortiz ,* , F. Argüelles-Arias, M. Illanes, J.M. García-Montes, E. Talero, L. Macías-García, A. Alcudia, V. Vázquez-Román, V. Motilva, M. De-Miguel. Nutrients* ***2020****, 12, 1752; doi:10.3390/nu12061752*

10- *Influence of the porosity and type of bioglass on the micro-mechanical and bioactive behavior of coated porous titanium substrates. R. Moriche, A.M. Beltrán, B. Begines, J.A. Rodríguez-Ortiz, A. Alcudia, Y. Torres. Journal of Non-Crystalline Solids* ***2020****, 551, 12043*

11- *`` Design of highly stabilized nanocomposite inks based on biodegradable polymer-matrix and gold nanoparticles for Inkjet Printing of biomedical sensors´´. B. Begines, A. Alcudia, R. Aguilera-Velazquez, G. Martinez, Y. He, R. Wildman, M.-J. Sayagues, A. Jimenez, R. Prado-Gotor. Scientific Reports,* **9,** 16097 (**2019**). https://doi.org/10.1038/s41598-019-52314-2

12- *``Core cross-linked nanoparticles from self-assembling polyfma-based micelles. Encapsulation of lipophilic molecules´´. E. Galbis Fuster, M.V. Paz Bañez, N. Iglesias Blanco, Nieves, B. Lacroix, A. Alcudia Cruz. European Polymer Journal, 89,* ***2017****, 406-418.*

C.2. Research projects.

1-Nuevos Análogos De Sulforafano: Síntesis Enantioselectiva Y Actividad Biológica. Researcher. Ministerio De Ciencia E Innovación, Proyecto De Excelencia De La Junta De Andalucia. **P11-FQM-8046.** Universidad De Sevilla. From 26/03/2013 to 26/03/2017. PI: Inmaculada Fernández Fernández.

2-Carbohidratos Y Compuestos Quirales De Azufre: Aplicación Para La Síntesis Estereoselectiva De Compuestos De Interés. Researcher. Ministerio De Ciencia E Innovación. **CTQ2010-21755-C02-02**. Universidad De Sevilla. From 01/01/2011 to 31/12/2013. PI: Inmaculada Fernández Fernández.

3-Polímeros Biodegradables A Partir De Fuentes Renovables Como Sistemas Para El Transporte Y Liberación De Fármacos Y Material Genético. Researcher. Proyecto de Excelencia **P12-FQM-1553.** Junta de Andalucía. From 01/01/2014 to 31/12/2017. PI: Juan A. Galbis Pérez.

4-Polímeros de Fuentes Renovables para Aplicaciones Farmacéuticas: Homopolímeros y Copolímeros Basados en Azúcares. Researcher. **MAT2016-77345-C3-2-P**. Ministerio de Economía, Industria y competitividad. From 01/01/2016 to 31/12/2018. PI: Manuel Bueno.

→**5- Investigador principal:** Yadir Torres/ **Ana Alcudia**. Implantes de Base Titanio con Rigidez Adaptada, Superficie Biofuncionalizada y Poros Rellenos con Polímeros Biodegradables, Antibacterianos y Potencial Actividad Terapéutica**. PID2019-109371GB-I00. Ministerio de Ciencia y Tecnología.** From June 2020-May 2023, (120000 Euros).

6-Fabricación y caracterización de cilindros con gradiente de porosidad longitudinal mediante congelación dirigida, modificación superficial e infiltración con un compuesto de quitosano y bio vidrios para sustitución de tejido óseo. Junta de Andalucía, proyectos PAIDI 2020. P20_ 00671. Investigador.

→**6-Investigador principal:** Eloisa Pajuelo/ **Ana Alcudia**. FEDER-Andalucía 2014-2020. NANOPARTÍCULAS TROYANAS: comida por fuera, veneno por dentro. Diseño y evaluación de nanopartículas biodegradables para su aplicación en medicina personalizada. **US-1380878.** 01/01/2022 to 31/12/2022, (58.000 Euros).

C.3. Patents

1-ES2130917 (A1)-Process for the preparation of chiral phosphines and phosphine oxides from di-O-alkylidene and di-O-arylidene-*α*-D-glucofuranosyl phosphinates. A. Alcudia, A. Benabra, N. Khiar, I. Fernández, F. Alcudia. Applicant: Universidad de Sevilla. No Exploitation.

2- Patente solicitada, referencia: **P202030325**. Fecha recepción 21 abril 2020: Uso terapéutico de un extracto de Maqui en la enfermedad de Chron.

3-Patente solicitada, Fabricación de implantes dentales porosos mediante el prensado secuencial longitudinal, sinterizado, y biofuncionalización de su superficie, para obtener un equilibrio en su comportamiento biomecánico y actividad terapéutica. Recepción Abril 2021.

C.5, C.6, C.7…

-Awards and Grants:

1-Premio Extraordinario de Doctorado. University of Seville. 1999. 2-Premio a la Excelencia Docente. School of Pharmacy, University of Seville. 2005. 3-Premio Funcionarización University of Seville. 2011. 4-Postdoctoral Contract: ``Ramón y Cajal Contract´´ 2004-2009. 5-MEC-Fulbright and NATO postdoctoral grants. 2000-2002. 6-Prize for best publication of the month. June 2020. Facultad de Medicina, Sevilla. 7-Prize for best publication, ``Bruker Award 2020´´. December 2021.
-Premio Bruker, Universidad de Sevilla al mejor articulo científico relacionado con la Resonancia magnética Nuclear. Enero 2022.
-Member of the SEQT (Sociedad Española de Química Terapéutica): from 8/10/2003. -Guest Editor for Pharmaceutics and Materials Journals. -Reviewer Journal: The International Journal for the Science and Technology of Polymers; Nanomedicine, MDPI Journals and J. of Non-crystaline Solids, Materials, Nanomaterials, Pharmaceutics, Gels, Polymers, Journal of Polymers and the Environment.
-Director of Master´s Theses (TFM): 4 + 1 (June 2022). Director of Bachelor Degree´s Theses (TFG): 20.
-Director/Tutor of PhD 1) María Pérez-Aranda Redondo: Evaluación de la actividad Antimicrobiana de Entidades Químicas No Convencionales para su Uso en Dermatología Veterinaria (Defense: 7th May 2021-Sobresaliente *cum laude*); and in progress: 2) Guillermo Martínez Muñoz: Síntesis de Materiales Poliméricos con Potenciales Propiedades Terapéuticas para Aplicaciones Novedosas en Biomedicina (December 2024); 3) Manuel Merinero de los Santos: Nuevo estudios de la Acción de Extractos de Maqui en Enfermedades del Sistema Digestivo (December 2023); Ana Castillejos Redondo: Nuevos Materiales para Recubrimientos de Prótesis Dentales con Propiedades Mecánicas y Terapéuticas Implementadas (December 24).
-Member of Bachelor Degree´s Thesis Defense Committee: 9.
-Professional Experience in Pharmaceutical Companies: 20 months.
1-Johnson & Johnson Pharmaceutical Research and Development (Jannsen), Toledo, Spain. Synthesis of potential drugs of the Central Nervous System: Synthesis of Small Molecule Libraries Aiming at the Discovery of New Antidepressant Agents.
2- PharmaMar S.A., Colmenar Viejo-Madrid, Spain. Anticancer drugs: Synthesis of Natural Ecteinascidines from Cyanosaphracin B.

-Other Publications: Teaching Innovation Book Chapters with ISBN: 17. Organic Chemistry Laboratory Videos (US).

-Teaching Experience related to my research: Organic Chemistry I, Medicinal Chemistry I and Biotechnology, all from Bachelor Degree in Pharmacy and double Degree in Pharmacy, Optics and Optometry.

-English: C1 Accreditation.