



Carlos Benítez Martín

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**Carlos Benítez Martín**

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Previous positions and activities

	Employing entity	Professional category	Start date
	Universidad de Málaga	Investigador Predoctoral - Contrato de Formación de Profesorado Universitario (FPU) / FPU Fellowship	30/10/2017

Employing entity: Universidad de Málaga **Type of entity:** University
Department: Departamento de Química Orgánica, Facultad de Ciencias
City employing entity: Málaga, Andalusia, Spain
Professional category: Investigador Predoctoral **Educational Management (Yes/No):** Yes
 - Contrato de Formación de Profesorado Universitario (FPU) / FPU Fellowship
Start-End date: 30/10/2017 - 15/10/2021 **Duration:** 3 years - 11 months - 16 days

Type of contract: Grant-assisted student (pre or post-doctoral, others)

Dedication regime: Full time

Performed tasks: Título completo de la tesis: Síntesis y caracterización de nuevos cromóforos con propiedades de absorción de dos fotones y estudio de su aplicación en bioimagen Thesis full title: Synthesis and characterization of new chromophores with two-photon absorption properties and study of their application in bioimaging

Field of management activity: University

Applicability in teaching and/or research: Mainly research, but also teaching (180h along three years)



Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

- 1** **University degree:** Higher degree
Name of qualification: Máster en Química
Degree awarding entity: Universidad de Málaga **Type of entity:** University
Date of qualification: 21/07/2017
- 2** **University degree:** Higher degree
Name of qualification: Graduado en Química
Degree awarding entity: Universidad de Málaga **Type of entity:** University
Date of qualification: 15/07/2016

Doctorates

Doctorate programme: Programa de Doctorado: Química y Tecnologías Químicas. Materiales y Nanotecnología

Degree awarding entity: Universidad de Málaga **Type of entity:** University

City degree awarding entity: Málaga, Andalusia, Spain

Date of degree: 15/10/2021

DEA awarding entity: Universidad de Málaga

Thesis title: Synthesis and characterization of new chromophores with two-photon absorption properties and study of their application in bioimaging

Thesis director: Ezequiel Pérez de Inestrosa Villatoro

Thesis co-director: Francisco Nájera Albendín

Obtained qualification: Cum Laude & International Mention

Recognition of quality: Yes

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
English	B1	B1	B1	B1	B1
Spanish	C2	C2	C2	C2	C2
French					



Teaching experience

General teaching experience

- 1** **Name of the course:** Laboratorio de Química Orgánica
University degree: Graduado/a en Química
Start date: 15/03/2021
Entity: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
End date: 21/04/2021
Type of entity: University
- 2** **Name of the course:** Química General
University degree: Graduado/a en Bioquímica
Start date: 19/11/2020
Entity: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
End date: 16/11/2020
Type of entity: University
- 3** **Name of the course:** Operaciones Básicas de Laboratorio
University degree: Graduado/a en Química
Start date: 12/05/2020
Entity: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
End date: 15/05/2020
Type of entity: University
- 4** **Name of the course:** Laboratorio Avanzado de Química Orgánica
University degree: Graduado/a en Química
Start date: 19/02/2020
Entity: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
End date: 27/02/2020
Type of entity: University
- 5** **Name of the course:** Laboratorio de Química Orgánica
University degree: Graduado/a en Química
Start date: 04/03/2019
Entity: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
End date: 07/03/2019
Type of entity: University
- 6** **Name of the course:** Química Orgánica
University degree: Graduado/a en Ingeniería Química
Start date: 24/09/2018
Entity: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
End date: 15/02/2019
Type of entity: University
- 7** **Name of the course:** Química Orgánica
University degree: Graduado/a en Bioquímica
Start date: 10/12/2018
Entity: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
End date: 13/12/2018
Type of entity: University



Experience supervising doctoral thesis and/or final year projects

Project title: Moléculas fotocromicas basadas en indoleninas (TFG)

Entity: Universidad de Málaga

Type of entity: University

Student: María Andrea Guerrero Oetiker

Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

Name of the project: DENDRIMEROS BIOMIMETICOS Y SISTEMAS BIFOTONICOS PARA NANOMEDICINA (Equipo de trabajo)

Entity where project took place: MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES - UNIVERSIDAD DE MÁLAGA

Type of entity: State agency

City of entity: Málaga, Andalusia, Spain

Name principal investigator (PI, Co-PI....): Ezequiel Pérez de Inestrosa Villatoro; Francisco Nájera Albendín

Nº of researchers: 6

Start-End date: 01/01/2020 - 21/12/2022

Total amount: 114.950 €

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1 Sergio Gámez Valenzuela; David Neusser; Carlos Benítez Martín; Francisco Nájera Albendín; Juan Antonio Guadix Domínguez; Carlos Moreno Yruela; María Belén Villacampa Naverac; Rocío Ponce Ortiz; Sabine Ludwigs; Raquel Andreu Solano; María Carmen Ruíz Delgado. V-shaped pyranilidene/triphenylamine-based chromophores with enhanced photophysical, electrochemical and nonlinear optical properties. *Materials Advances*. RSC, 25/05/2021.

Type of production: Scientific paper

Corresponding author: No

- 2 Gaowa Naren; Wera Larsson; Carlos Benítez Martín; Shiming Li; Ezequiel Pérez de Inestrosa Villatoro; Bo Albinsson; Joakim Andréasson. Rapid amplitude-modulation of a diarylethene photoswitch: en route to contrast-enhanced fluorescence imaging. *Chemical Science*. 12, pp. 7073 - 7078. RSC, 15/04/2021.

Type of production: Scientific paper

Format: Journal

Corresponding author: No



- 3** Carlos Benítez Martín; Shiming Li; Antonio Domínguez Alfaro; Francisco Nájera Albendín; Ezequiel Pérez de Inestrosa Villatoro; Uwe Pischel; Joakim Andréasson. Toward Two-Photon Absorbing Dyes with Unusually Potentiated Nonlinear Fluorescence Response. *Journal of the American Chemical Society*. 142 - 35, pp. 14854 - 14858. ACS Publications, 15/08/2020.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
- 4** Carlos Benítez Martín; Juan Antonio Guadix Domínguez; John Robert Pearson; Francisco Najera Albendín; Jose María Pérez Pomares; Ezequiel Pérez de Inestrosa Villatoro. Indolenine-Based Derivatives as Customizable Two-Photon Fluorescent Probes for pH Bioimaging in Living Cells. *ACS Sensors*. 5 - 4, pp. 1068 - 1074. ACS Publications, 31/03/2020.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
- 5** Iván Torres Moya; Carlos Benítez Martín; Beatriz Donoso Jurado; Carlos Tardío; Raúl Martín; José R. Carrillo; Ángel Díaz Ortiz; Francisco Nájera Albendín; María del Pilar Prieto Núñez-Polo; Ezequiel Pérez de Inestrosa Villatoro. Extended Alkenyl and Alkynyl Benzotriazoles with enhanced Two-Photon Absorption properties as a promising alternative to Benzothiadiazoles. *Chemistry - A European Journal*. 25 - 68, Wiley, 24/09/2019.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
- 6** Carlos Benítez Martín; Juan Antonio Guadix Domínguez; John Robert Pearson; Francisco Nájera Albendín; José María Pérez Pomares; Ezequiel Pérez de Inestrosa Villatoro. A turn-on two-photon fluorescent probe for detecting lysosomal hydroxyl radicals in living cells. *Sensors and Actuators B: Chemical*. 284 - 1, pp. 744 - 750. Elsevier, 02/01/2019.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No

Works submitted to national or international conferences

- 1** **Title of the work:** Towards Two-Photon Absorption Bioimaging through New Fluorophores Based on Indolium Derivatives
Name of the conference: V GEQB ChemBio Group Meeting
Corresponding author: No
City of event: Granada, Andalusia, Spain
Date of event: 19/02/2020
End date: 21/02/2020
Organising entity: Real Sociedad Española de Química **Type of entity:** CSIC, UGR, RSEQ
City organizing entity: Granada, Andalusia, Spain
Ezequiel Pérez de Inestrosa Villatoro; Carlos Benítez Martín; Juan Antonio Guadix Domínguez; John Robert Pearson; Francisco Nájera Albendín; Jose María Pérez Pomares.
- 2** **Title of the work:** "Off-On" Two-Photon Indolenine Probes for pH Bioimaging
Name of the conference: IX Reunión de Química Orgánica del Mediterráneo
Corresponding author: No
City of event: Murcia, Region of Murcia, Spain
Date of event: 23/10/2019
End date: 25/10/2019
Organising entity: Universidad de Murcia **Type of entity:** University
City organizing entity: Murcia, Region of Murcia, Spain



Carlos Benítez Martín; Juan Antonio Guadix Domínguez; John Robert Pearson; Francisco Nájera Albendín; Jose María Pérez Pomares; Ezequiel Pérez de Inestrosa Villatoro.

- 3** **Title of the work:** A Novel Two-Photon Optimized Fluorescent Probe For Detecting Hydroxyl Radicals In The Lysosomes on Living Cells
Name of the conference: Spanish Portuguese Meeting for Advanced Optical Microscopy
Corresponding author: No
City of event: Granada, Andalusia, Spain
Date of event: 24/10/2018
End date: 26/10/2018
Organising entity: Red Española de Microscopía Óptica Avanzada y Portuguese Platform of Bioimage
City organizing entity: Granada, Andalusia, Spain
Carlos Benítez Martín; Juan Antonio Guadix Domínguez; John Robert Pearson; Francisco Nájera Albendín; Jose María Pérez Pomares; Ezequiel Pérez de Inestrosa Villatoro.
- 4** **Title of the work:** Design and Synthesis of New Molecules based on Indolium Derivatives for Two-Photon Absorption Bioimaging Applications
Name of the conference: XV Simposio de Jóvenes Investigadores de la Real Sociedad de Química Española
Corresponding author: Yes
City of event: Toledo, Castile-La Mancha, Spain
Date of event: 05/10/2018
End date: 08/10/2018
Organising entity: Real Sociedad Española de Química **Type of entity:** Sociedad
City organizing entity: Toledo, Castile-La Mancha, Spain
Carlos Benítez Martín; Francisco Nájera Albendín; Ezequiel Pérez de Inestrosa Villatoro. "Design and Synthesis of New Molecules based on Indolium Derivatives for Two-Photon Absorption Bioimaging Applications".
- 5** **Title of the work:** Detecting Hydroxyl Radical with a new Two-Photon fluorescent probe in Living Cells
Name of the conference: XXVII Biennial Meeting in Organic Chemistry
Corresponding author: No
City of event: Santiago de Compostela, Galicia, Spain
Date of event: 20/06/2018
End date: 22/06/2018
Organising entity: Real Sociedad Española de Química **Type of entity:** Sociedad
City organizing entity: Santiago de Compostela, Galicia, Spain
Francisco Nájera Albendín; Carlos Benítez Martín; Juan Antonio Guadix Domínguez; José María Pérez Pomares; Ezequiel Pérez de Inestrosa Villatoro. "Detecting Hydroxyl Radical with a new Two-Photon fluorescent probe in Living Cells".
- 6** **Title of the work:** Tuning pKa in new molecules based on indolines for Two-Photon Absorption Bioimaging Applications
Name of the conference: XXVII Biennial Meeting in Organic Chemistry
Corresponding author: Yes
City of event: Santiago de Compostela, Galicia, Spain
Date of event: 20/06/2018
End date: 22/06/2018
Organising entity: Real Sociedad Española de Química **Type of entity:** Sociedad



City organizing entity: Santiago de Compostela, Galicia, Spain

Carlos Benítez Martín; Ezequiel Pérez de Inestrosa Villatoro; Francisco Nájera Albendín. "Tuning pKa in new molecules based on indolines for Two-Photon Absorption Bioimaging Applications".

7 Title of the work: New molecules based on indolium for Two-Photon Absorption Bioimaging Applications

Name of the conference: XIV Simposio de Jóvenes Investigadores de la Real Sociedad de Química Española

Corresponding author: Yes

City of event: Badajoz, Extremadura, Spain

Date of event: 07/11/2017

End date: 10/11/2017

Organising entity: Real Sociedad Española de Química

Type of entity: Sociedad

City organizing entity: Badajoz, Extremadura, Spain

Carlos Benítez Martín; Ezequiel Pérez de Inestrosa Villatoro; Francisco Nájera Albendín. "New molecules based on indolium for Two-Photon Absorption Bioimaging Applications".

8 Title of the work: Modelling Fluorophores for Biological Two-Photon Absorption (2PA) Applications

Name of the conference: 8th European Symposium on Computing pi-Conjugated Compounds

Corresponding author: Yes

City of event: Málaga, Andalusia, Spain

Date of event: 27/01/2017

End date: 28/01/2017

Organising entity: Universidad de Málaga y Universidad de Alicante

Type of entity: University

City organizing entity: Málaga, Andalusia, Spain

Carlos Benítez Martín; Ezequiel Pérez de Inestrosa Villatoro; Francisco Nájera Albendín. "Modelling Fluorophores for Biological Two-Photon Absorption (2PA) Applications".

9 Title of the work: New Indolium Fluorofores for Two-Photon Ansrption (2PA) Bioimaging Applications

Name of the conference: V Spanish-Portuguese Conference on Photochemistry

City of event: Toledo, Castile-La Mancha, Spain

Date of event: 07/09/2016

End date: 10/09/2016

Organising entity: Universidad de Castilla-La Mancha

Type of entity: University

City organizing entity: Toledo, Castile-La Mancha, Spain

Ezequiel Pérez de Inestrosa Villatoro; Carlos Benítez Martín; Francisco Nájera Albendín. "New Indolium Fluorofores for Two-Photon Ansrption (2PA) Bioimaging Applications".



Other achievements

Stays in public or private R&D centres

- 1** **Entity:** Chalmers University of Technology **Type of entity:** University
Faculty, institute or centre: Physical Chemistry, Chemistry and Chemical Engineering Department
City of entity: Göteborg, Västsverige, Sweden
Start-End date: 01/09/2019 - 01/12/2019 **Duration:** 3 months
Goals of the stay: Doctorate
Provable tasks: Exploring FRET processes linked to Two-Photon Excited Fluorescence
- 2** **Entity:** Universidad de Santiago de Compostela **Type of entity:** University
Faculty, institute or centre: CIQUS
City of entity: Santiago de Compostela, Galicia, Spain
Start-End date: 01/07/2015 - 30/07/2015 **Duration:** 1 month
Goals of the stay: Summer Fellowship

Obtained grants and scholarships

- 1** **Name of the grant:** Contrato para Formación de Profesorado Universitario
Aims: Pre-doctoral
Awarding entity: MINISTERIO DE EDUCACION Y CIENCIA
Conferral date: 30/10/2017 **Duration:** 4 years
End date: 30/10/2021
Entity where activity was carried out: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
- 2** **Name of the grant:** Ayuda para la Iniciación a la Investigación para estudiantes de másteres oficiales
Aims: Pre-doctoral
Awarding entity: Universidad de Málaga **Type of entity:** University
Conferral date: 01/02/2017 **Duration:** 5 months
End date: 30/06/2017
Entity where activity was carried out: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias
- 3** **Name of the grant:** Beca de Colaboración
Aims: Pre-doctoral
Awarding entity: MINISTERIO DE EDUCACION Y CIENCIA
Conferral date: 01/11/2015 **Duration:** 8 months
End date: 31/07/2016
Entity where activity was carried out: Universidad de Málaga
Faculty, institute or centre: Facultad de Ciencias



Prizes, mentions and distinctions

- 1** **Description:** Premio extraordinario Fin de Carrera en el Grado de Química (curso 2015/2016)
Awarding entity: Universidad de Málaga **Type of entity:** University
City awarding entity: Málaga, Andalusia, Spain
Conferral date: 06/06/2017
- 2** **Description:** Premio extraordinario "El País" a mejores expedientes académicos en la Facultad de Ciencias de la Universidad de Málaga
Awarding entity: Diario El País, S.L. y Universidad de Málaga
City awarding entity: Málaga, Andalusia, Spain
Conferral date: 02/12/2016