



Teresa Capell

Catedràtica contractada

Dades personals



Categoria: Catedràtica contractada

Àrea de coneixement: Producció Vegetal

Adreça: ETSEA, Edifici Principal A

Telèfon: +34 973 702831

E-mail: teresa.capell@udl.cat [<mailto:teresa.capell@pvcf.udl.cat>]

Formació Acadèmica

- Llicenciada en Farmàcia, Facultat de Farmàcia de la Universitat de Barcelona, 1990
- Doctorat en Farmàcia (Fisiologia Vegetal), Facultat de Farmàcia, Universitat de Barcelona, 1994

Experiència Professional

- 1995 - 1998, Becària post-doctoral al Departament de Genètica Aplicada i Unitat de Biotecnologia Molecular, John Innes Centre, Norwich, UK
- 1998 - 2001, Cap de grup, Unitat de Biotecnologia Molecular, John Innes Centre, UK
- 2002 - 2004, Cap de grup, Departament de Genètica de Cultius i Biotecnologia, Fraunhofer, IME, Germany
- 2004 - 2009, Cap de grup, Departament de Producció Vegetal i Ciència Forestal, ETSEA-UdL, Lleida, Spain.
- 2009-2011, Professora agregada, UdL
- 2011- actualitat, Catedràtica contractada, UdL

Recerca

Biotecnologia



Docència

· BIOTECNOLOGIA VEGETAL	Grau en Biotecnologia
· BIOTECNOLOGIA AGRÀRIA	Grau en Enginyeria Agrària i Alimer
· TECNOLOGIES GÈNIQUES, GENÒMIQUES I DE TRANSFORMACIÓ GENÈTICA	Màster Universitari en Millora Genè
· BIOTECNOLOGIA	Màster Universitari en Fructicultura

Publicacions Recents

Capell T, Twyman RM, Armario-Najera V, Ma JKC, Schillberg S, Christou P (2020) Potential applications of plant biotechnology against SARSCoV-2. Trends in Plant Science, <https://doi.org/10.1016/j.tplants.2020.04.009> [<https://doi.org/10.1016/j.tplants.2020.04.009>].

Moreno JA, Díaz-Gómez J, Fuentes-Font L, Angulo E, Gosálvez LF, Sandmann G, Portero-Otin M, **Capell T**, Zhu C, Christou P, Nogareda C (2020) Poultry diets containing (keto)carotenoid-enriched maize improve egg yolk color and maintain quality Animal Feed Science and Technology 206:114334-114344

Jin X, Baysal C, Gao L, Medina V, Drapal M, Ni X, Sheng Y, Shi L, **Capell T**, Fraser PD, Christou P, Zhu C. (2019) The subcellular localization of two isopentenyl diphosphate isomerases in rice suggests a role for the endoplasmic reticulum in isoprenoid biosynthesis" Plant Cell Reports Nov 2. doi: 10.1007/s00299-019-02479-x.

Banakar R, Fernandez AA, Zhu C, Abadia J, **Capell T**, Christou P (2019) The ratio of phytoalexins to deoxymugenic acid controls metal homeostasis in rice Planta 250:1339-1354 doi: 10.1007/s00425-019-03230-2

Mir-Artigues P, Twyman RM, Alvarez D, Cerda-Bennasser P, Balcells M, Christou P, **Capell T** (2019) A simplified techno-economic analysis of molecular pharming Biotechnology and Bioengineering 116:2526-2539 doi: 10.1002/bit.27093.

Diretto G, Jin X, Zhu C, **Capell T**, Gómez-Gómez L (2019) Differential accumulation of pelargonidin glycosides in petals at three different developmental stages of the orange-flowered gentian (*Gentiana lutea* L. var. *aurantiaca*) PLoS ONE 14(2):e0212062

Díaz Benito P, Banakar R, Rodríguez-Menéndez S, **Capell T**, Pereiro R, Christou P, Abadía J, Fernández B, Álvarez-Fernández A (2018) Iron and zinc in the embryo and endosperm of rice (*Oryza sativa* L.) seeds in contrasting 2'-deoxymugineic acid/nicotianamine scenarios Frontiers in Plant Science doi: 10.3389/fpls.2018.01190

Zanga D, Sanahuja G, Eizaguirre M, Albajes R, Christou P, **Capell T**, Fraser P, Gerrisch C, López C (2018) Carotenoids moderate the effectiveness of a Bt gene against the European corn borer, *Ostrinia nubilalis* PlosOne 13(7):e0199317. doi: 10.1371/journal.pone.0199317. eCollection 2018.



- Vamvaka E, Farré G, Molinos-Albert LM, Evans A, Canela-Xandri A, Twyman RM, Carrillo J, ordoñez RA, Shattock R, O'Keefe BR, Clotet B, Blanco J, Khush GS, Christou P, **Capell T** (2018) Unexpected synergistic HIV neutralization by a trile microbicide produced in rice endosperm. Proc Natl Acad Sci of USA 115: E7854-E7862
- Pérez L, E Soto, G. Villorbina, L Bassie, V Medina, P Muñoz, **T Capell**, C Zhu, P Christou, G Farré (2018) CRISPR/Cas9-induced monoallelic mutations in the cytosolic AGPase large subunit gene APL2 induce the ectopic expression of APL2 and the corresponding small subunit gene APS2b in rice leaves Transgenic Research 27: 423-439
- Berman U, Zorrilla-Lopez U, Sandmann G, **Capell T**, Christou P, Zhu C (2017) The silencing of carotenoid B-hydroxylases by RNA interference in different maize genetic backgrounds increases the b-carotene content of the endosperm. International Journal of Molecular Sciences 18:2515
- Díaz-Gómez J, J.A. Moreno, E. Angulo, G. Sandmann, C. Zhu, AJ Ramos, **T. Capell**, P. Christou, Nogareda C (2017) High-carotenoid biofortified maize is an alternative to color additives in poultry feed Journal: Animal Feed Science and Technology 231:38-46
- Banakar R, Alvarez-Fernandez A, Díaz-Benito P, Abadia J, **Capell T**, and Christou P (2017) Phytosiderophores determine thresholds for iron and zinc accumulation in biofortified rice endosperm while inhibiting the accumulation of cadmium J Exp Bot 68:4983-4995
- Díaz-Gómez J, Moreno JA, Angulo E, Sandmann G, Zhu C, **Capell T**, Nogareda C (2017) Provitamin A carotenoids from an engineered high-carotenoid maize are bioavailable and zeaxanthin does not compromise -carotene absorption in poultry. Transgenic Research. 26: 591-601
- Zhu C; Farre G; Zanga D; Lloveras J; Michelena A; Ferrio JP; Voltas J; Slafer GA; Savin R; Albajes R; Eizaguirre M; Lopez C; Cantero-Martínez C; Díaz-Gómez J; Nogareda C; Moreno JA; Angulo E; Estany J; Pena RN; Tor M; Portero-Otin M; Eritja N; Arjó G; Serrano JCE; Matias-Guiu X; Twyman RM; Sandmann G; **Capell T**; Christou P (2018) High-carotenoid maize: development of plant biotechnology prototypes for human and animal health and nutrition Phytochemistry Reviews 17: 195-209
- Berman, J; Zorrilla, U; Medina, V; Farré, G; Sandmann, G; **Capell, T**; Christou, P; Zhu, C (2017) The Arabidopsis *ORANGE (AtOR)* gene promotes carotenoid accumulation in transgenic corn hybrids derived from parental lines with limited carotenoid pools Plant Cell Reports 36:933-945
- Diaz-Gomez J, Twyman RM, Zhu C, Farre G, Serrano JCE, **Capell T**, Christou P (2017) Biofortification of crops with nutrients: factors affecting utilization and storage. Current Opinion in Biotechnology 44: 115-123
- Zanga D, **Capell T**, Slafer GA, Christou P, Savin R (2016) A carotenogenic mini-pathway introduced into white corn does not affect development or agronomic performance Scientific Reports 6: 38288
- Moreno JA, Diaz-Gomez J, Nogareda C, Angulo E, Sandmann G, Portero-Otin M, Serrano JCE, Twyman RM, **Capell T**, Zhu C, Christou P (2016) The distribution of carotenoides in hems fed on biofortified maize is influenced by feed composition, absorption, resource allocation and storage Scientific Reports 6:35346
- Bortesi, L; Zhu, C; Zischewski, J; Perez, L; Bassié, L; Nadi, R; Forni, G; Lade, S; Soto, E; Jin, X; Medina, V; Villorbina, G; Muñoz, P; Farré, G; Fischer, R; Twyman, R; **Capell, T**; Christou, P; Schillberg, S (2016) Patterns of CRISPR/Cas9 activity in plants, animals and microbes. Plant Biotechnology Journal 14:2203-2216
- Banakar; Alvarez Fernández, Á; Abadia, J; **Capell, T**; Christou, P (2016) The expression of heterologous Fe (III) phytosiderophore transporter HvYS1 in rice increases Fe uptake, translocation and seed loading and excludes heavy metals by selective Fe transport. Plant Biotechnol J 15: 423-432



- Zhu C, Bortesi L, Baysal C, Twyman RM, Fischer R, **Capell T**, Schillberg S, Christou P (2017) Characteristics of genome editing mutations in cereal crops. Trends in Plant Science 22: 38-52
- Bai C., Berman J., Farre G., **Capell T.**, Sandmann G., Christou P., Zhu C (2017) Reconstruction of the astaxanthin biosynthesis pathway in rice endosperm reveals a metabolic bottleneck at the level of endogenous -carotene hydroxylase activity. Transgenic Research 26:13-23
- Berman J, Sheng Y, Gómez Gómez L, Veiga T, Ni X, Farre G, **Capell T**, Guitian J, Guitian P, Sandmann G, Christou P Zhu C, (2016) Red anthocyanins and yellow carotenoids form the color of orange-flower gentian (*Gentiana lutea* L. var. aurantiaca) PLoS ONE doi:10.1371/journal.pone.0162410.
- Breitenbach J, Nogueira M Farre G Zhu C **Capell T** Christou P Fleck G Fockem U Fraser PD Sandmann G (2016) Engineered maize as a source of astaxanthin: processing and application as fish feed. Transgenic Research 25: 785-739
- Comas, J; Benfeitas, R; Vilaprinyo, E; Sorribas, A; Solsona, F; Farré, G; Berman J, Zorrilla U, **Capell, T**; Sandmann, G; Zhu, C; Christou, P; Alves, R (2016) Identification of line-specific strategies for improving carotenoid production in synthetic maize through data-driven mathematical modelling The Plant Journal 87: 455-471.
- Vamvaka, E; Arcalis E, Ramessar, K; Evans, A; O'Keefe, B; Shattock, R; Piles, V; Stoger E, Christou, P; **Capell, T** (2016) Cyanovirin-N produced in rice endosperm offers effective pre-exposure prophylaxis against HIV-1BaL infection in vitro Plant Cell Reports 35: 1309-1319
- Farré G, Perez-Fons L, Decourcelle M, Breitenbach J, Hem S, Zhu C, **T Capell**, Christou P, Fraser PD, Sandmann G (2016) Metabolic engineering of astaxanthin biosynthesis in maize endosperm and characterization of a prototype high oil hybrid Trangenic Research 25:477-489
- Díaz-Gómez J, S. Marín, **T. Capell**, V. Sanchis and A.J. Ramos (2016) The impact of Bacillus thuringiensis technology on the occurrence of fumonisins and other mycotoxins in maize World Micotoxin Journal 9: 475-486
- Vamvaka, E; Arcalis E, Ramessar, K; Evans, A; O'Keefe, B; Shattock, R; Piles, V; Stoger E, Christou, P; **Capell, T** (2016) Rice endosperm is cost effective for the production of recombinant griffithsin with potent activity against HIV . Plant Biotechnology Journal 14: 1427-1437
- S Ahrazem O, Rubio-Moraga A, Berman J, **Capell T**, Christou P, Zhu C, Gómez-Gómez L (2016) The carotenoid cleavage dioxygenase CCD2 catalysing the synthesis of crocetin in spring crocuses and saffron is a plastidial enzyme. New Phytologist 209: 650-663
- Zanga, D; **Capell, T**; Zhu, C; Christou, P; Thangaraj, H (2016) Freedom-to-operate analysis of a transgenic multivitamin corn variety Plant Biotechnol Journal. 14: 1225-1240
- Chang; S J Berman; Y Sheng; Y Wang; **T Capell**; L Shi; X Ni; G Sandmann; P Christou; C Zhu (2015) Cloning and functional characterization of the maize (*Zea mays* L.) carotenoid epsilon hydroxylase gene PLoS ONE 10(6):e0128758. doi: 10.1371/journal.pone.0128758.
- Bai, C **T.Capell**, J Berman, V Medina, G.Sandmann, P.Christou, C. Zhu (2016) Bottlenecks in carotenoid biosynthesis and accumulation in rice endosperm are influenced by the precursor–product balance. Plant Biotechnology Journal 14:195-205
- Nogareda, C; Moreno, JA; Angulo, E; Sandmann, G; Portero, M; **Capell, T**; Zhu, C; Christou, P (2016) Carotenoid-enriched transgenic corn delivers bioavailable carotenoids to poultry and protects them against coccidiosis. Plant Biotechnology Journal 14: 160-168



Vamvaka E, Twyman RM, Murad A, Melnik S, Teh A, Arcalis E, Altmann F, Stoger E, Rech E, Ma J, Christou P, **Capell T.**(2016) A recombinant HIV-neutralizing antibody produced in rice endosperm accumulates predominantly as an aglycosylated derivative with enhanced neutralizing activity. Plant Biotechnology Journal 14: 97-108

Per més informació (Consultes GREC [
<http://webgrec.udl.cat/cgi-bin/DADREC/crgen.cgi?FONT=3&IDI=CAT&PID=367567&IDNC=201210161350170>])