

Dr. Frederick Warren**D.O.B. 25/06/1986****Employment**

Dec 2015- Current: Career Track Research Leader, Institute for Food Research, Norwich, UK

Jan 2013 – Oct 2015: UQ Research Fellow, University of Queensland, Australia

Nov 2011 – Dec 2012: Applications Scientist, PerkinElmer, UK, and PDRA at King's College London

Education

2007 - 2011: Nutritional Biochemistry Ph.D. King's College London

2004 - 2007: Biochemistry B.Sc., First Class (Hons), King's College London.

Current Funding

EU Marie Curie Skłodowska Fellowship (FABCARB); BBSRC Super Follow-on BB/P023770/1
Co-Investigator

Recent Publications

P.W. Gous, F.J. Warren, R.G. Gilbert, and G.P. Fox. "Drought-proofing barley (*Hordeum vulgare*): the effects of stay-green on starch structure and amylose content." *Cereal Chemistry* (2017: Accepted for publication).

H. Patel, P.G. Royall, S. Gaisford, G.R. Williams, C.H. Edwards, F.J. Warren, B.M. Flanagan, P.R. Ellis, and P.J. Butterworth. "Structural and enzyme kinetic studies of retrograded starch: Inhibition of α -amylase and consequences for intestinal digestion of starch." *Carbohydrate Polymers* (2017) **164**, 154-161.

W. Zou, M. Sissons, F.J. Warren, M.J. Gidley, & R.G. Gilbert. Compact structure and proteins of pasta retard in vitro digestive evolution of branched starch molecular structure. *Carbohydrate polymers* (2016) **152**, 441-449.

F.J. Warren, M.J. Gidley, B.M. Flanagan. Infrared spectroscopy as a tool to characterise starch ordered structure—a joint FTIR–ATR, NMR, XRD and DSC study. *Carbohydrate Polymers* (2016) **139** 35-42

F.J. Warren, B.B. Perston, S.P. Galindez-Najera, C.H. Edwards, P.O. Powell, G. Mandalari, G.M. Campbell, P.J Butterworth, P.R. Ellis. Infrared microspectroscopic imaging of plant tissues: spectral visualization of *Triticum aestivum* kernel and *Arabidopsis* leaf microstructure. *The Plant Journal* (2015) **84**, 634-646

S. Dhital, M.J. Gidley, F.J. Warren. Inhibition of α -amylase activity by cellulose: kinetic analysis and nutritional implications. *Carbohydrate polymers* (2015), **123**, 305-312

M. Li, T. Witt, F. Xie, F.J. Warren, P.J. Halley, R.G. Gilbert. Biodegradation of starch films: The roles of molecular and crystalline structure. *Carbohydrate polymers*, (2015) **122**, 115-122

A.J. Baldwin, D.L. Egan, F.J. Warren, P.D. Barker, C.M. Dobson, P.J. Butterworth, P.R. Ellis. Investigating the Mechanisms of Amylolysis of Starch Granules by Solution-State NMR. *Biomacromolecules*, (2015) **16**, 1614-1621.

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F.J. Warren, B. Zhang, G. Waltzer, M.J. Gidley, S. Dhital. The interplay of α -amylase and amyloglucosidase activities on the digestion of starch in *in vitro* enzymic systems. *Carbohydrate Polymers* (2015) **117**, 192-200

P.W. Gous, F.J. Warren, O.W. Mo, R.G. Gilbert, G.P. Fox. The effects of variable nitrogen application on barley starch structure under drought stress. *Journal of the Institute of Brewing*, (2015) **121**, 502-509.

P.O. Powell, M.A. Sullivan, J.J. Sheehy, B.L. Schulz, F.J. Warren, R.G. Gilbert. Acid Hydrolysis and Molecular Density of Phytoglycogen and Liver Glycogen Helps Understand the Bonding in Glycogen α (Composite) Particles. *PLoS One* (2015) **10**, e0121337

C.H. Edwards, F.J. Warren, G.M. Campbell, S. Gaisford, P.G. Royall, P.J. Butterworth, P.R. Ellis. A study of starch gelatinisation behaviour in hydrothermally-processed plant food tissues and implications for *in vitro* digestibility. *Food and Function* (2015) 3634-3641

B.M. Flanagan, M.J. Gidley, F.J. Warren. Rapid quantification of starch molecular order through multivariate modelling of ^{13}C CP/MAS NMR spectra. *Chemical Communications* (2015) **51**, 14856-14858

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S. Dhital; F.J. Warren; B. Zhang & M.J. Gidley. Amylase binding to starch granules under hydrolysing and non-hydrolysing conditions. *Carbohydrate Polymers* (2014) **113**, 97-107

S. Dhital; F.J. Warren; P.J. Butterworth; P.R. Ellis & M.J. Gidley. Mechanisms of starch digestion by α -amylase—structural basis for kinetic properties. *Critical Reviews in Food Science and Nutrition* (2015) **57**, 875-892

M.W. Boehm; F. J. Warren; J. E Moore; S. K. Baier; M. J. Gidley; & J. R. Stokes. Influence of hydration and starch digestion on the transient rheology of an aqueous suspension of comminuted potato snack food. *Food and Function* (2014) **5**, 2775-2782.

R. Jawad; A.F. Drake; C. Elleman; G.P. Martin; F.J. Warren; B.B. Perston; P.R. Ellis, M.A. Hassoun; & P.G. Royall. The stability of sugar solutions: A novel study of the epimerisation kinetics of lactose in water. *Molecular pharmaceutics* (2014) **11**, 2224-2238