



24th WORKSHOP ON VITAMIN D

Sept 6-9 2022
Austin, Texas



ABSTRACT SUBMISSION GUIDELINES

DEADLINE FOR ABSTRACT SUBMISSION IS JULY 15, 2022

General Information: Abstracts of research related to all aspects of vitamin D biology are welcome. It is not necessary to register at the time of abstract submission, but at least one author must register and attend the Workshop in person. All abstracts will be reviewed and ranked by the Program Committee. These rankings will be used to select abstracts for presentation as “Short Talks” (10mins + 5min Q&A) or “Plenary Posters” (to be highlighted at the Welcome Reception and displayed throughout the meeting). Rankings will also be used to select winners of the Tony Norman Young Investigator Awards and The Ron Horst Presentation Awards (targeted to fellows and students).

Submission Process Step by Step:

1. You must first create a “New User” account with “Access Key” (ie, password) on the Abstract submission platform at <https://www.abstractscorecard.com/cfp/submit/login.asp?EventKey=NUOCPQEA>.
2. Create profile with personal and professional details.
3. Input Abstract Title in UPPERCASE LETTERS. MAXIMUM 200 characters or 75 words.
4. Create a list of authors for this submission – each author is added individually. Inputs: name, affiliation, email address and role (Submitter, Presenter or Author). Save authors and continue to Abstract Submission.
5. Add Abstract body into text box. Expand text box by dragging bottom right corner. Include funding if applicable at end of abstract. MAXIMUM 400 words.
6. A confirmation email will be sent to acknowledge successful submission.
7. You can login to your account to edit your abstract after submission if needed.

SAMPLE ABSTRACT

1,25(OH)₂D-MEDIATED CALCIUM ABSORPTION AT PROXIMAL COLON: TARGETED GENE UPREGULATION BY GLYCOSIDE/GLUCURONIDE CALCITRIOL. H Jiang¹, R. Horst², NJ Koszewski³, JP Goff³, S Christakos⁴, JC Fleet¹. ¹Dept. of Nutrition Science, Purdue University, IN; ²GlycoMyr, Ames, IA, ³Dept. Biomedical Sciences, Iowa State U., IA; ⁴Rutgers New Jersey Medical School, NJ.

Intestinal calcium (Ca) absorption efficiency is associated with high peak bone mass in adolescents and reduced bone loss in adulthood. Intestinal Ca absorption is mediated by the active metabolite of vitamin D, 1,25 dihydroxyvitamin D (1,25(OH)₂D, calcitriol), and vitamin D receptor (VDR). While most research has studied Ca absorption in the proximal small intestine, emerging evidence shows that large intestine plays a crucial role in whole body Ca homeostasis. We directly assessed and compared Ca absorption capacity at the proximal colon (PCo) and duodenum (Dd) using *in situ* ligated loops from the same mouse (2 mM Ca, 10 min). In 9-week-old C57BL/6J mice fed AIN93G diet (0.5% Ca, 1000 IU vitamin D/kg), the PCo (35.4±4.1%) had comparable ability to absorb Ca as the Dd (35.4±8.3%). In age-matched VDR knockout mice Ca absorption efficiency was reduced by 55% in Dd and 45% in PCo. These data suggest that large intestine could be targeted to improve Ca absorption and protect bone in at risk groups (e.g. bariatric patients). Glycoside forms of calcitriol found in *Solanum Glaucophyllum* (Sg) leaf are biologically inert but can be activated to 1,25(OH)₂D upon bacterial cleavage of the glycosides in the colon. We conducted a pilot study to test whether Sg leaf, as well as a novel, synthetic 1,3-diglucuronide form of calcitriol could target the PCo and upregulate genes involved in Ca absorption (i.e. Trpv6, calbindin D_{9k}). 13-week-old female C57B6/J mice were fed AIN93G diet containing increasing levels of one of the two compounds for 2 weeks (delivering 0, 0.25, 0.5, 1, or 2 ng calcitriol equivalents per day). Both compounds induced a dose-dependent upregulation of Cyp24a1 gene expression in the PCo but neither influenced Dd Cyp24a1 mRNA levels. Furthermore, both compounds induced Trpv6 and calbindin D_{9k} mRNA in the PCo. These data suggest that glycoside and glucuronide forms of calcitriol could be used to improve Ca absorption by targeting the PCo without systemic effects. Future studies will be done to test the translational potential of these compounds and determine whether improving Ca absorption at PCo can protect bone. Supported by NIH grant R01DK112365 to JC Fleet, S. Christakos.