亞洲大學

九十五學年度碩士班招生考試試題紙

系　所　別	組 別	考試科目	考試日期	時　　間	備　　註
生活應用科學學系碩士班		營養學	95.4.30	10:30-12:10	共二頁

一、解釋名詞： (20 分)

(1) Aspartame

(2) Ketone body

(3) Complementary protein

(4) 4 D's syndrome

(5) BMR

二、下列各臨床症狀是因為缺乏何種營養素所引起？(10 分)

(1) 呆小症

(2) 心臟與肌肉病變

(3) 腳氣病

(4) 惡性貧血

(5) 中樞神經管中空

三、假設吃了一碗牛肉麵，請說明其中所含的主要三大能量營養素，在我們的消化道中如何被消化吸收？(10 分)

四、陳小姐其血漿鈣質濃度為 5 mg/dL，請問其身體會如何調節來維持血鈣的平衡。(10 分)

五、何謂 Metabolic syndrome？需留意哪五項指標？(10 分)

六、近年來 BMI 常用來衡量成人之肥胖，試問其公式、標準範圍以及理想體重該如何計算？(10 分)

七、試述新版 (民國 91 年) 的 DRI 具有哪些特色？(10 分)

亞洲大學

九十五學年度碩士班招生考試試題紙

系　所　別	組 別	考試科目	考試日期	時　　間	備　　註
生活應用科學學系碩士班		營養學	95.4.30	10:30-12:10	共二頁

八、請問該篇文章(在第二頁)出自於何期刊？其結論為何？

並請畫出 cis-9 (9Z), trans-11 (11E)-CLA 脂肪酸的的化學式。(20分)

Available online at www.sciencedirect.com

SCIENCE DIRECT®

Biochimica et Biophysica Acta 1735 (2005) 30–40

BIOCHIMICA ET BIOPHYSICA ACTA BBA

http://www.elsevier.com/locate/bba

Molecular and cellular effects of *cis*-9, *trans*-11-conjugated linoleic acid in enterocytes: Effects on proliferation, differentiation, and gene expression☆

A. Lampen*, M. Leifheit, J. Voss, H. Nau

Institut für Lebensmitteltoxikologie, Stiftung Tierärztliche Hochschule Hannover, Germany

Received 4 November 2004; received in revised form 20 January 2005; accepted 24 January 2005
Available online 16 February 2005

Abstract

It has been hypothesized that dietary conjugated linoleic acids (CLA) may inhibit colon tumorigenesis. The aim of our study was to investigate the cellular and molecular effects of *cis*-9 (9Z), *trans*-11 (11E)-CLA on the proliferation, differentiation, interaction with peroxisome proliferator-activated receptors (PPARs), and expression of genes relevant in the APC-β-catenin-TCF4 signalling pathway in human HT-29 and Caco-2 colon cells. We found that 9Z,11E-CLA inhibited the proliferation of HT-29 and Caco-2 cells. *Trans*-vaccenic acid (VA) showed no antiproliferative effects at all. We determined that 9Z,11E-CLA induced cell differentiation as measured by intestinal alkaline phosphatase (IAP) enzyme activity in Caco-2 cells, mRNA expression of IAP, and activation of a 5′ flanking region of IAP. The 9Z,11E-CLA activated human PPARδ as measured in a reporter gene assay. Treatment of HT29 cells in the poliferation phase with 9Z,11E-CLA repressed mRNA-expression of proliferation genes such as c-*myc*, cyclin D1 and c-*jun* in a concentration dependent manner. The promoter activities of c-*myc* and AP1 were also inhibited after incubation with 9Z,11E-CLA. β-Catenin mRNA and protein expression was also repressed by the treatment with 9Z,11E-CLA. In addition, the mRNA expression of PPARδ was repressed by treatment of the HT-29 cells with 9Z,11E-CLA. We conclude that 9Z,11E-CLA has an antiproliferative effect at the cellular and molecular levels in human colon cells. The results indicate that the preventive effects of CLA in the development of colon cancer may be due to their downregulation of some target genes of the APC-β-catenin-TCF-4- and PPARδ signalling pathway.

Keywords: CLA; Caco-2; HT29; PPAR; Proliferation; Differentiation