

(様式1)

公益社団法人日本栄養・食糧学会 研究業績

<学 会 賞>

1. 候補者

研究題目:(和)	動脈硬化危険因子の低減に寄与する機能性食品成分とリポ蛋白の質的評価に関する研究		
(英)	The study of functional dietary ingredients and lipoprotein quality assessment contributing to reductions in atherosclerotic risk factors		
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履 歴	昭和62年～ 防衛医科大学病院 研修医、レジデント 平成6年 防衛医科大学医学研究科 内科学第一講座循環器病学専攻(医学博士課程) 平成8～10年 留学:米国カリフォルニア大学サンディエゴ校医学部 平成13年 東京慈恵会医科大学 内科学講座 助手 平成15年 東京慈恵会医科大学 内科学講座 講師 同大学附属柏病院 内科総合診療部 診療医長 平成18年 東京慈恵会医科大学附属柏病院 中央検査部 診療部長 平成19年 東京慈恵会医科大学 臨床検査医学講座 准教授 同大学 大学院 代謝栄養内科学 准教授 平成22年 東京慈恵会医科大学附属柏病院 副院長(～現在) 平成25年 東京慈恵会医科大学 臨床検査医学講座 教授(～現在) 同大学 大学院 代謝栄養内科学 教授(併任、～現在)		
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## 2. 研究業績要旨(1,000字以内)

動脈硬化性心血管疾患の予防には、脂質異常症をはじめとする各危険因子の包括的管理が重要である。代表的な危険因子である脂質異常症の治療は、薬物療法に先んじて食事療法が基本であり、そのなかで機能性食品等の役割も期待される。また、LDL コレステロール(LDL-C)、HDL コレステロール(HDL-C)、トリグリセライド(TG)などの血清脂質の量的評価では、高 LDL-C 血症は主要な動脈硬化リスクとして位置付けられているが、高 TG 血症や低 HDL-C 血症には未解決の課題がある。我々は動脈硬化危険因子の包括的な管理法の確立を目指し、一貫して代謝栄養学的なアプローチを展開してきた。

我々はビタミン E、カテキン、アスタキサンチンなどの臨床的意義に着目し、臨床および基礎医学的研究を重ねてきた。高 TG 血症や低 HDL-C 血症が特徴である糖尿病の動脈硬化惹起性要因を探求し、LDL の小粒子化および被酸化性亢進に加え、LDL 粒子のビタミン E/潜在性過酸化脂質濃度比の低下などを明らかにした。併せて、ビタミン E 投与によって LDL および HDL の抗酸化能が高まること、茶類の飲用は LDL の抗酸化能を発揮することを臨床研究で確認した。さらにメカニズムの一部として、茶カテキン類はマクロファージや血管内皮細胞の LDL 過酸化能を抑え、とりわけマクロファージによるスーパーオキシド産生と鉄分泌を抑制することを見出した。また我々はアスタキサンチンが高 TG 血症および低 HDL-C 血症に改善効果を示すことを明らかにするとともに、血清アディポネクチン濃度の上昇を確認した。アスタキサンチンは低 HDL-C 血症やメタボリックシンドロームの改善策としても期待される。

一方、多様なリポ蛋白の量的・質的評価のために簡便で正確な測定系の必要性を考え、非孔性陰イオン交換カラムを用いた高速液体クロマトグラフィによるリポ蛋白分画定量法および安定同位体による HDL 機能分析法を確立した。前者はわが国の保険医療の臨床検査として承認を受け、動脈硬化危険因子の臨床評価に広く利用されているが、これを発展させて HDL、LDL、VLDL のビタミン E 濃度を簡便に測定する方法を確立した。脂質異常症では VLDL のビタミン E 含量が少ないことが見い出され、今後の動脈硬化・脂質研究に新たな展開が期待される。また後者においては、昨今 HDL-C 濃度の過度な高値はかえって動脈硬化リスクを高めるなど HDL の質の重要性が指摘されていることから、我々が開発した HDL コレステロール引き抜き能の評価法は、今後の臨床研究や HDL の質を向上させる機能性食品成分のスクリーニングなどに役立つ可能性がある。

(999 文字)

### 3. 報文等リスト

#### (1) この研究に直接関連するもの(10 編以内)

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(3) 過去 5 年間の本学会での活動状況

①学会役員等

理事:2014・2015 年度 (編集担当業務執行理事)、2018 年・2019 年度 (編集担当業務執行理事)  
2020 年度～現在(代表理事・副会長)

代議員:2014 年度～現在

参 与:2013 年度～現在

②委員会等

編集委員会:委員長 2018・2019 年度、副委員長 2016・2017 年度、担当理事 2014・2015 年  
委員 2008～2011 年度

利益相反委員会:委員長・担当理事 2014・2015 年度、副委員長 2016・2017 年度、委員 2018 年  
度～現在

用語委員会:委員長・担当理事 2018・2019 年度、副委員長 2016・2017 年度、副委員長・担当理事  
2014・2015 年度

将来構想検討委員会:委員 2014 年度～現在

倫理審査委員会:委員長 2018 年度～現在、委員 2014～2017 年度

JNSV 編集委員会:副委員長 2017 年度～現在、担当理事 2014・2015 年度

22nd IUNS-ICN 組織委員会:委員 2018 年度～現在

22nd IUNS-ICN 募金委員会:委員長 2018 年度～現在

IUFoST-Japan:理事 2020 年度～現在

日本栄養学学術連合;代理者 2020 年度～現在

③栄養・食糧学会の座長

74 回大会(2020)シンポジウム 9「脳心血管病対策と合併症・重症化予防に役立つ食事療法」

73 回大会(2019)シンポジウム 9 市民公開シンポジウム「少年期・青年期からの食生活習慣の見直しと生活習慣病予防」

72 回大会(2018)医学系学会合同シンポジウム「内臓脂肪肥満とインスリン抵抗性ー病態生理と栄養学的アプローチ」

71 回大会(2017)医学系学会合同シンポジウム「動脈硬化性疾患予防のための生活療法」

65 回大会(2011)シンポジウム 6「脂質代謝研究の今日的话题」

④栄養・食糧学会のシンポジウムなどにおける講演

70 回大会(2016)教育講演「利益相反と健全な研究のあり方」

70 回大会(2016)医学系合同シンポジウム「糖尿病における食事療法の意義と課題」に於いて、「脂質栄養と脂質異常症」

67 回大会(2013)シンポジウム 7「医学における栄養学の最新研究ー医学で栄養学はどの程度の役割を果たしているのかー」に於いて、「心血管病における抗酸化ビタミンおよび n-3 脂肪酸の臨床的意義」

⑤日本医学会

評議員 2020 年度～現在、連絡委員 2016～2019 年度、用語委員 2016～2019 年度

「領域横断的なフレイル・ロコモ対策の推進に向けたワーキンググループ」委員 2020 年度～現在

(4) 特記事項: 賞詞

1999 年 防衛医科大学第一内科 第 2 回大鈴賞

2000 年 防衛衛生協会 優秀論文賞

2004 年 日本臨床検査医学会 奨励賞

2008 年 Evergreen Award (アメリカ内科学会)

2009 年 日本臨床検査医学会 学会賞「生命科学賞」

2020 年 ACP アメリカ内科学会・日本支部 Contribution Award2019