

<学 会 賞>

研究題目,(和)	食嗜好とエネルギー消費を基盤とした食品健康科学研究		
(英)	Strategic studies on diets for health based on dietary preference and energy expenditure		
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学 位,	農学博士	最終学歴,	昭和55年3月、京都大学大学院農学研究科博士課程指導認定
会員番号,	009-602-7746	入会年度,	昭和53年

研究業績要旨(1,000 字以内)

先進工業国において、エネルギーの過剰摂取や運動不足が種々の生活習慣病増加の原因となっている。高カロリー食の摂取欲求やエネルギーを消耗する運動の忌避はともに動物としての本能に根ざしたものであり、動物行動科学的な視点なくして改善は容易ではない。本研究では、現代人の過剰なエネルギー摂取を改善するための食嗜好の制御と無理のないエネルギー消費促進を目的として、基礎となる3つの問題を主に実験動物を用いて解析した。

1, 油脂をはじめとする高嗜好性食品のおいしさのメカニズム解明とダシのおいしさに関わる研究。

油脂の口腔内受容機構を明らかにし、味細胞表面に受容体候補タンパク質を見出した。一方、動物行動学実験によって油脂の摂取がマウスに報酬効果をもたらすことを明らかにし、高嗜好性食品への執着のメカニズムを示した。同様の研究で、日本の伝統食であるダシの旨味に対しても高度な嗜好性があることを見出し、健康な食生活に向けて、油脂に代わるダシの嗜好教育の重要性の根拠を与えた。

2, 運動によるエネルギー代謝変化の解析と食品成分の影響

長時間の水泳運動を課したラットの脳脊髄液中に、マウスの自発行動を抑制する物質が増加することを示し、活性型 TGF- β であることを明らかにした。脳内 TGF- β は体温上昇や末梢の脂肪酸化を促進する作用をも有し、運動時のエネルギー基質の選択に関わる物質であることを示した。マウス1匹ずつの呼気ガスを精密に解析できるシステムを構築し、運動中の脂質代謝に対する食品の影響を探求すると同時に、国内の様々な研究グループが創生したトランスジェニックマウスのエネルギー代謝測定に広く協力・貢献した。

3, エネルギー消費促進としての食品成分による自律神経の制御。

香辛料を中心として、人間の自律神経活度を高める成分の探索とメカニズム解析を行った。京都大学の矢澤が発見した無辛味トウガラシから抽出した新規カプサイシン様物質に、エネルギー消費を促進する作用があることを見出し、自律神経を介してマウスやヒトの体脂肪蓄積抑制効果があることを明らかにした。

以上の3つの研究業績は、いずれも現代人の直面する健康問題の解決の糸口となるとともに、新規食品開発や食育、食文化などの領域の進展にも寄与するものである。

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(3) 過去5年間の本学会での活動状況

学会誌編集

2004年～2006年5月31日 JNSV誌 副編集委員長(栄養分野担当)

2006年6月1日より JNSV誌 編集委員長

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2008年 理事

学会シンポジウム・座長関係

2004年 日本栄養食糧学会大会 座長、大会シンポジウム講演

2005年 日本栄養食糧学会大会 座長、大会シンポジウム講演

2006年 日本栄養食糧学会大会 座長、栄養食糧学会市民公開講座 講師
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2007年 日本栄養食糧学会大会 座長、ランチョンセミナー講師
日本栄養食糧学会60周年記念学術講演会・シンポジウム 特別講演
日本栄養食糧学会中四国・近畿支部合同大会シンポジウム 講演

2008年 日本栄養食糧学会大会 座長、

(4) 特記事項

学会受賞歴

日本農芸化学会 平成2年度 奨励賞「食品に内在する膵酵素分泌情報の解明と動物消化管における情報認識機構」