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大隅　良典　栄誉教授（東京工業大学）の研究成果

■酵母の細胞遺伝学的な研究で、世界で初めてオートファジー（自食作用：細胞内におけるリサイクリング機能）の分子レベルでのメカニズムの解明に成功。
■高等動植物細胞を用いたオートファジー研究の進展により、神経変性疾患、癌、加齢に伴う病気などを治療する医療への応用が期待される。

功　績

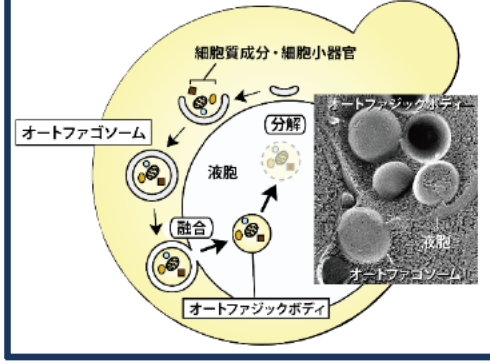
1976年、出芽酵母で細胞増殖の制御機構に関する研究を開始。

1988年、酵母細胞のオートファジーを発見。
⇒　2年後に論文発表。
⇒　高等動植物細胞でも同じ現象を発見。

当該成果が細胞内のリサイクリング機能の証明につながり、医学界に大きなインパクト。

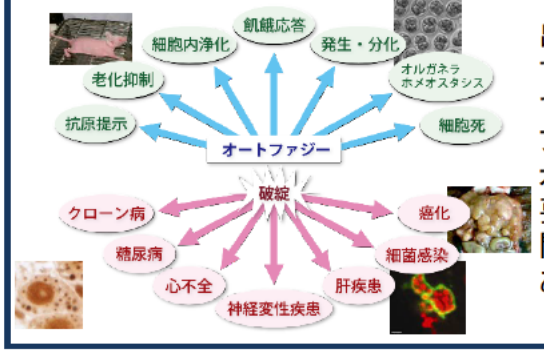
今後、医療分野への応用が期待される。

出芽酵母のオートファジー



出芽酵母を栄養飢餓にさらすと、細胞質の一部がオートファゴソームという膜の袋で包み込まれ、種々の分解酵素を含む液胞に運ばれて分解されることを発見した。

オートファジーの生理機能と疾患との関係



出芽酵母で同定された遺伝子に相当する遺伝子が哺乳類を含む他の生物でも配列検索により見つかり、オートファジーの研究が爆発的に進展した。オートファジーは様々な生命現象に重要な役割を果たし、多くの病気とも深く関わることが急速に明らかになりつつある。

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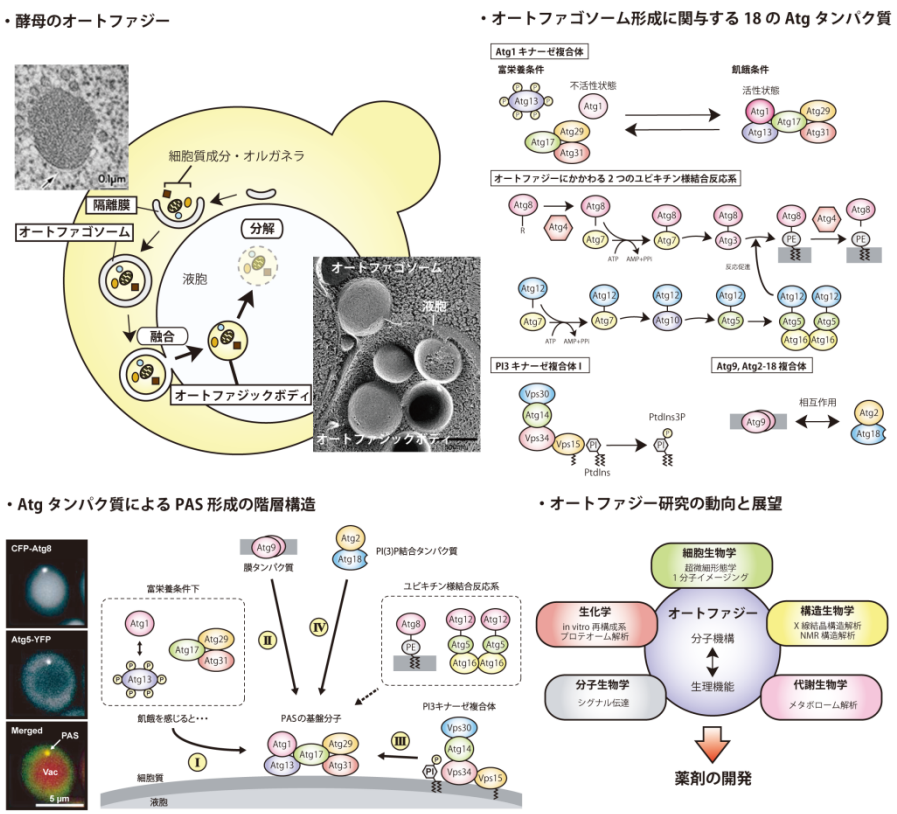
平成28年(2016)	ワイリー賞
平成28年(2016)	国際ポール・ヤンセン生物医学研究賞

細胞の環境適応システム、オートファジーの分子機構と生理的意義の解明

研究概要

オートファジーは、細胞内におけるリサイクリング機能。細胞が栄養環境などに適応して自らのタンパク質分解を行う自食作用「オートファジー」に関して、酵母を用いた細胞遺伝学的な研究を進めて世界をリードする成果をあげ、その分子機構や多様な生理的意義の解明において、多大な貢献を果たしている。



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論文および著書の主たるものを以下に記す。

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