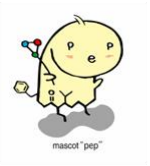
第60回ペプチド討論会

ペプチド研究所の研究
—Beyond frontiers —
ランチョンセミナー



我々は50年近くに亘り，高い品質を持つ様々なペプチドを世界中に提供することで，ペプチド研究の発展に貢献してまいりました。本日はこれまでに我々が研究者の皆さまとともに開拓してきたペプチド科学について簡単に紹介させていただきます。また，近年，研究者の皆さまにご利用いただいている弊社オススメの試薬・サービスについてもいくつか紹介させていただきます。

日程

2023年
11月9日 木
12:10 ~ 13:10

演者

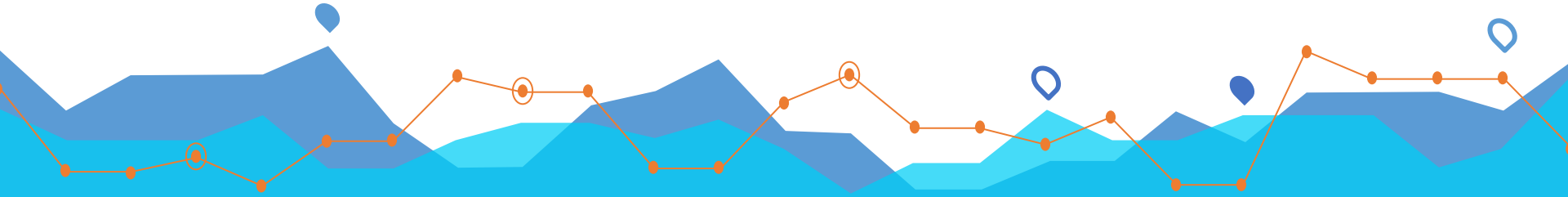
代表取締役
副社長 **吉矢 拓**

大阪大学発
ベンチャー企業
の先駆け

内容

- 特殊ペプチドの受託合成
- 水溶性を高める修飾
- 抗体修飾試薬
- GL Biochem社（合成用試薬）やBiointron社（発現抗体）の取り次ぎ販売

2023/11/9 The 60th memorial
Japanese peptide symposium



ペプチド研究所の研究
—Beyond frontiers —

Taku Yoshiya
Peptide institute, Inc.

- Introduction to the Peptide Institute
- History of the cutting-edge researches
- Promotion of our products

Introduction to the Peptide Institute

History of the cutting-edge researches

Promotion of our products

Introduction to the Peptide Institute

●所在地　大阪府茨木市彩都あさぎ7-2-9

●沿革

昭和33年　大阪大学に全国共同利用研究所として蛋白質研究所が設立　**当社の起源**

昭和37年　大阪大学蛋白質研究所内にペプチドセンター新設

昭和46年　箕面市に財団法人ペプチド研究所開設

昭和52年　株式会社ペプチド研究所設立

平成18年　彩都研究所開設

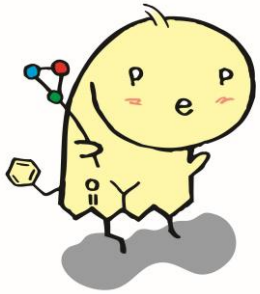
平成26年　本社を彩都に移転

大阪大学発のベンチャー企業の先駆け

●事業内容　ペプチド、蛋白質、糖関連化合物の研究開発 ・ 製造販売

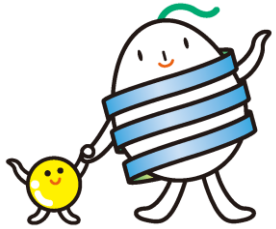
●従業員数　43名（男性28名:女性15名・学位取得者13名）
大阪大学大学院理学研究科 招聘教授3名

●資本金　4,910万円 (資本準備金を含む)



mascot "pep"

ペプチド研究所
ペップちゃん



阪大蛋白研
きみちゃん＆たんぱくん

Catalog Products

We are distributing about 1000 kinds of bioactive peptides
and glycopeptides for all over the world.

Contract Manufacturing

For both Basic Research

--- Difficult peptides
--- Glycopeptides
--- Chemical biology-oriented compounds

- 受託ペプチド合成
- 糖鎖関連合成
- 抗体（ポリクローナル）作製
- ペプチド医薬品開発（GMP）
- その他のサービス

どんなことでも、まずはご相談ください！

受託サービス　お問い合わせ窓口

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Difficult peptides

Chemical biology-oriented compounds

本棟2F　クリーンブース

GMP棟全体

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GMP棟2階　原薬中間体製造エリア

GMP棟2階　原薬製造クリーンエリア

Peptide Institute *since 1962*

protected peptide resin

↓ **HF**

peptide

Sakakibara,S., Shimonishi,Y., Okada,M. and Kishida,Y.
8th European Peptide Symp at Holland **1966**

Aβ(1-42)

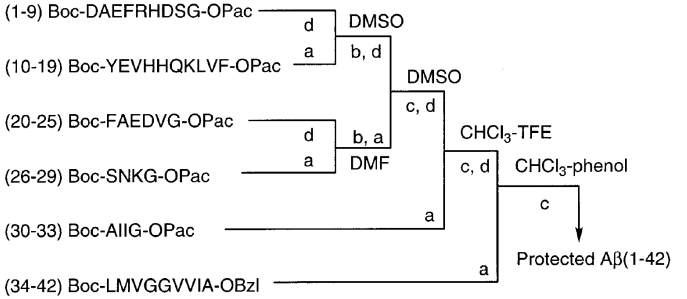


Figure 1. Sequence of segment condensation reaction for the synthesis of Aβ(1-42). (a) TFA; (b) EDC/HOBt; (c) EDC/HOOBt; (d) Zn/AcOH-HFIP.

1962 — **1966** — **1982** — **2002** — **1998**

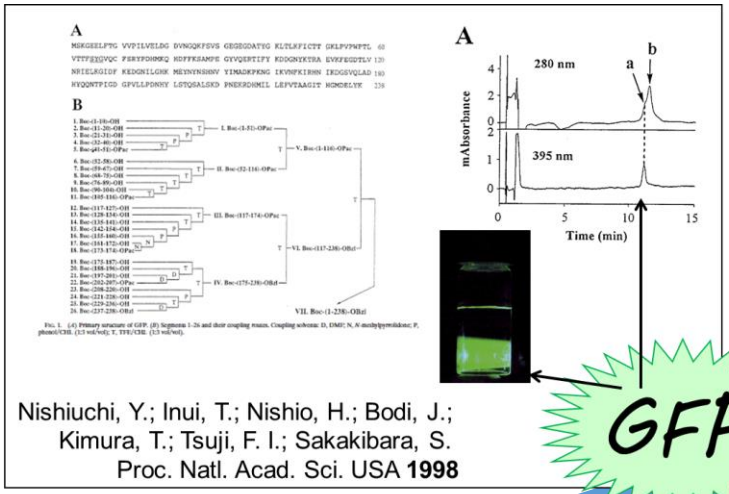
Conotoxin GI

5 10 13

Glu-Cys-Cys-Asn-Pro-Ala-Cys-Gly-Arg-His-Tyr-Ser-Cys-NH_2

Cys rich peptide

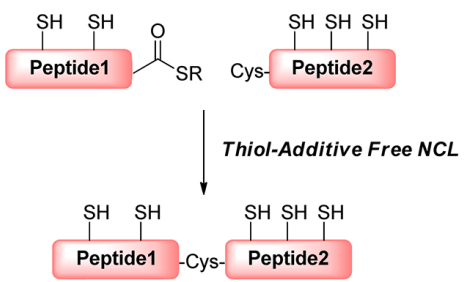
Sakakibara,S, Nishiuchi, Y **1982**



Nishiuchi, Y.; Inui, T.; Nishio, H.; Bodi, J.; Kimura, T.; Tsuji, F. I.; Sakakibara, S.
Proc. Natl. Acad. Sci. USA **1998**

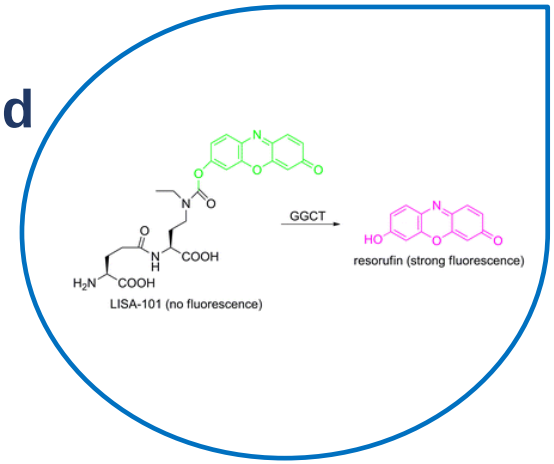
History of the cutting-edge researches

Difficult peptide synthesis

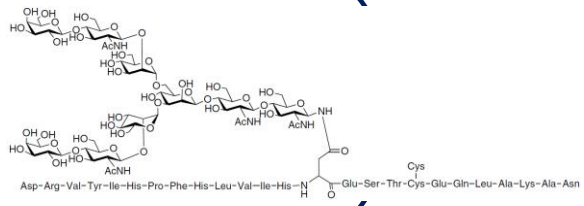


Peptide Institute

Chemical biology-oriented compounds



Glycopeptides synthesis

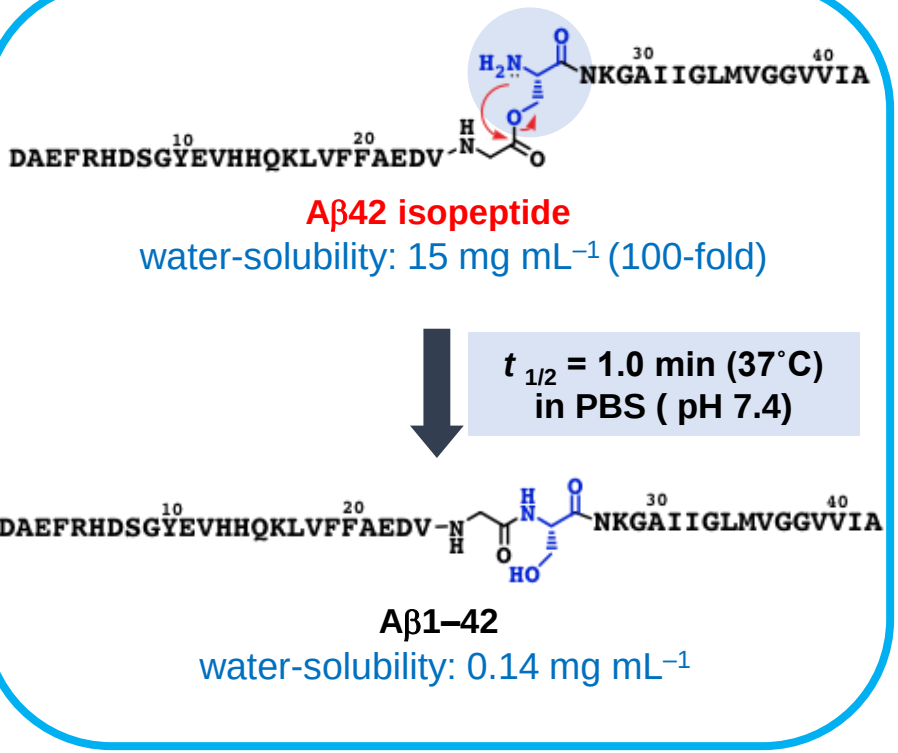


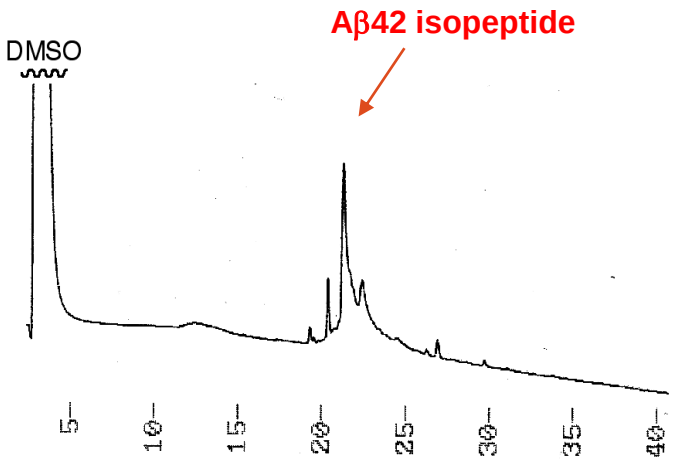
Beyond frontiers

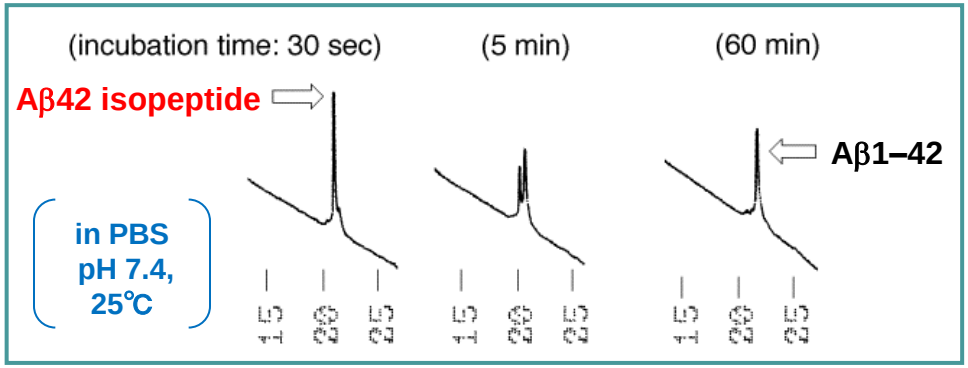
our office

About myself

Application of *O*-Acyl Isodipeptide Units: Aβ42 isopeptide to Aβ1–42 via *O*-to-*N* Acyl Migration





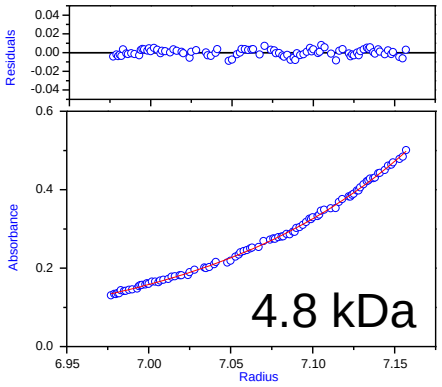


Sohma, Y. et al. *J. Pept. Sci.* **2005**, *11*, 441–451 .
Taniguchi, A. et al. *J. Pept. Sci.* **2007**, *13*, 868–874.

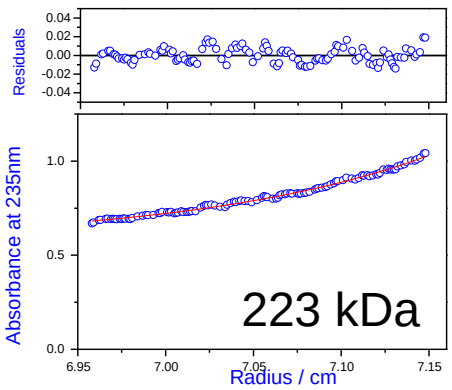
Analytical HPLC was performed using a C18 reverse phase column with binary solvent system: a linear gradient of CH_3CN (0–100% CH_3CN, 40min.) in 0.1% aqueous TFA at a flow rate of 0.9 mL min^{-1} (temperature 40˚C), detected at 230 nm.

分析超遠心によるアミロイドβ イソペプチドの解析

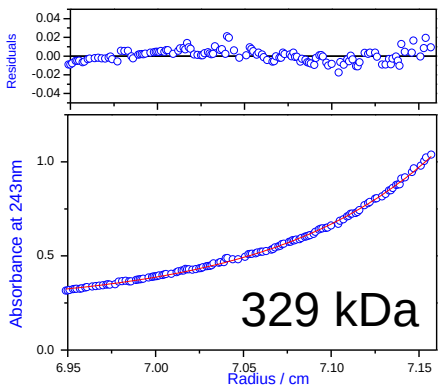
40 μM



140 μM



500 μM



Conditions:
0.1% TFA (aq.), 100 mM NaCl, 4ºC.
Sedimentation equilibrium method.
XL-A (Beckman Coulter, Inc., CA).

Monomeric MW value was obtained with a 40 mM solution of isopeptide **1** in 0.1% aqueous TFA. A similar value was obtained after the solution was stored for 2 weeks at -80ºC.

J. Pept. Sci., **20**, 669 (2014)
Bioorg. Med. Chem. Lett., **24**, 3861 (2014)

アミロイドβペプチドの前処理

Conventional directions

Dissolve native peptide

↓

Apply pretreatment
(*e.g.* organic solvent, ultracentrifugation)

↓

Quantify peptide concentration

↓

The biological/biophysical assays

Proposed directions of the isopeptide

Dissolve in an acidic medium

↓

The biological/biophysical assays

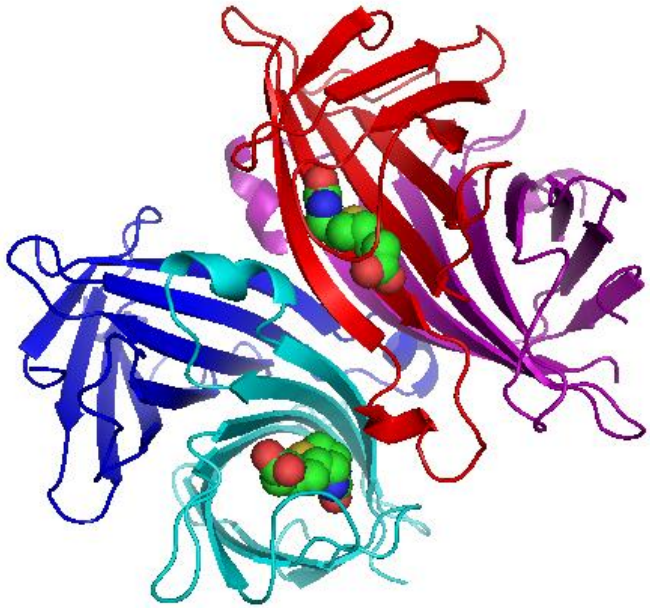
The pretreatments would **hamper reproducibility** and **make inter-laboratory discussions difficult**. Thus, we examined if the pretreatment can be omitted by the isopeptide.

https://www.peptide.co.jp/catalog/f-cat?k_code=AF-683

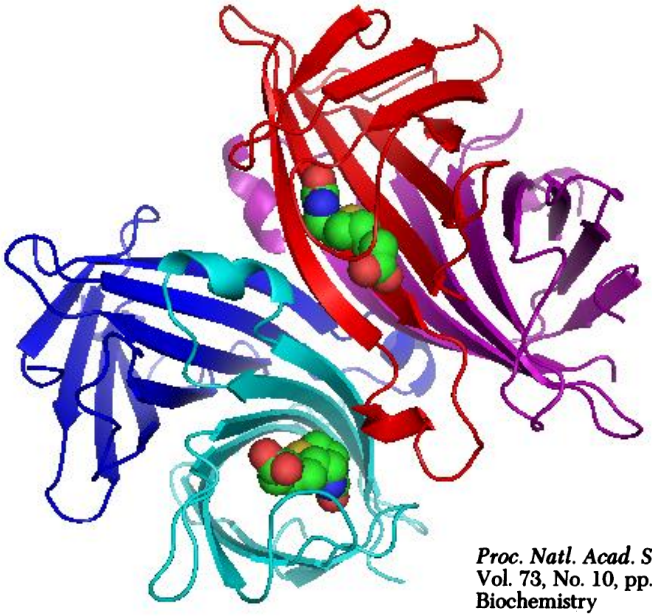
木曽先生 喜寿お祝い会

2023/4/23

Beyond frontiers



Beyond frontiers



https://ja.wikipedia.org/wiki/ストレプトアビジン

Proc. Natl. Acad. Sci. USA
Vol. 73, No. 10, pp. 3516–3518, October 1976
Biochemistry

An approach to the targeted attachment of peptides and proteins to solid supports

(corticotropin/avidin-biotin complex/biotinyl peptides/biotinyl proteins/hormone receptors)

KLAUS HOFMANN AND YOSHIAKI KISO

Protein Research Laboratory, University of Pittsburgh, School of Medicine, Pittsburgh, Pennsylvania 15261

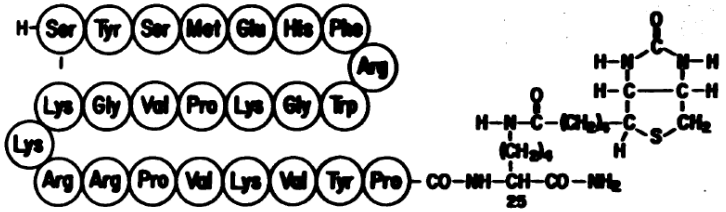


FIG. 1. Structure of [biocytin^{25}]ACTH(1–25) amide (I).

Introduction to the Peptide Institute

History of the cutting-edge researches

Promotion of our products

Peptide Institute *since 1962*

protected peptide resin

↓ **HF**

peptide

Sakakibara,S., Shimonishi,Y., Okada,M. and Kishida,Y.
8th European Peptide Symp at Holland **1966**

Aβ(1-42)

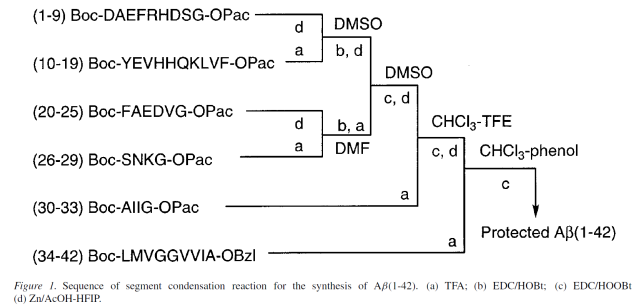


Figure 1. Sequence of segment condensation reaction for the synthesis of Aβ(1-42). (a) TFA; (b) EDC/HOBt; (c) EDC/HOOBt; (d) Zn/AcOH-HFIP.

Inui,T., Nishio,H., Nishiuchi,Y. **2002**

1962 **1966** **1982** **1998** **2002**

Conotoxin GI

5 10 13

Glu-Cys-Cys-Asn-Pro-Ala-Cys-Gly-Arg-His-Tyr-Ser-Cys-NH_2

Cys rich peptide

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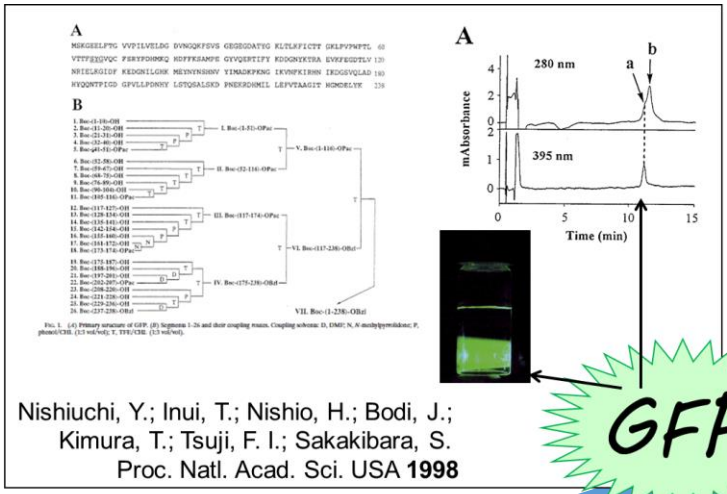
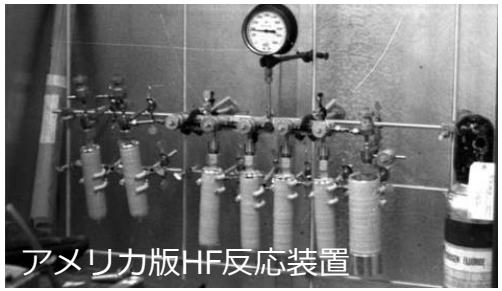


Nishiuchi, Y.; Inui, T.; Nishio, H.; Bodi, J.; Kimura, T.; Tsuji, F. I.; Sakakibara, S. Proc. Natl. Acad. Sci. USA **1998**

Vol. 8, No. 4, 1962 BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS



アメリカ版HF反応装置

1961-1963年
留学先　米国コーネル大学

THE N,O PEPTIDYL SHIFT IN ANHYDROUS HYDROGEN FLUORIDE

K.H. Shin, S. Sakakibara, W. Schneider*, and G.P. Hess

Department of Biochemistry
Cornell University
Ithaca, New York

TABLE I

N,O ACYL MIGRATION IN HYDROGEN FLUORIDE

Reaction Mixture	Days of Reaction	Micromoles Amino Nitrogen: Reaction Mixture	Micromoles Amino Nitrogen: Reaction Mixture After Bicarbonate Treatment
glycyl-DL-serine 617 µM. in 5 ml.HF (710 µM. amino nitrogen)	15	1210 (96%)[a]	680 (100%)[b]
glycyl-L-threonine 568 µM. in 5 ml.HF (665 µM. amino nitrogen	12	1110 (96%)[a]	630 (100%)[b]
DL-alanyl-DL-serine 568 µM. in 5 ml.HF (560 µM. amino nitrogen)	12	1040 (86%)[a]	570 (101%)[b]

[a](µM. amino nitrogen observed - µM. amino nitrogen of N-acyl compound) x 100 / (µM. amino nitrogen of synthetic O-acyl compound - µM. amino nitrogen of N-acyl compound).
[b]The amino nitrogen value obtained after treating the synthetic O-acyl compound with bicarbonate was taken as 100%.

Van Slyke determination:
Donald D. van Slyke (1910) *Berichte der Deutschen Chemischen Gesellschaft*, **43** : 3170-3181.

[CONTRIBUTION FROM THE ROCKEFELLER INSTITUTE, NEW YORK 21, N. Y.]

Solid Phase Peptide Synthesis. I. The Synthesis of a Tetrapeptide[1]

BY R. B. MERRIFIELD

RECEIVED JANUARY 31, 1963

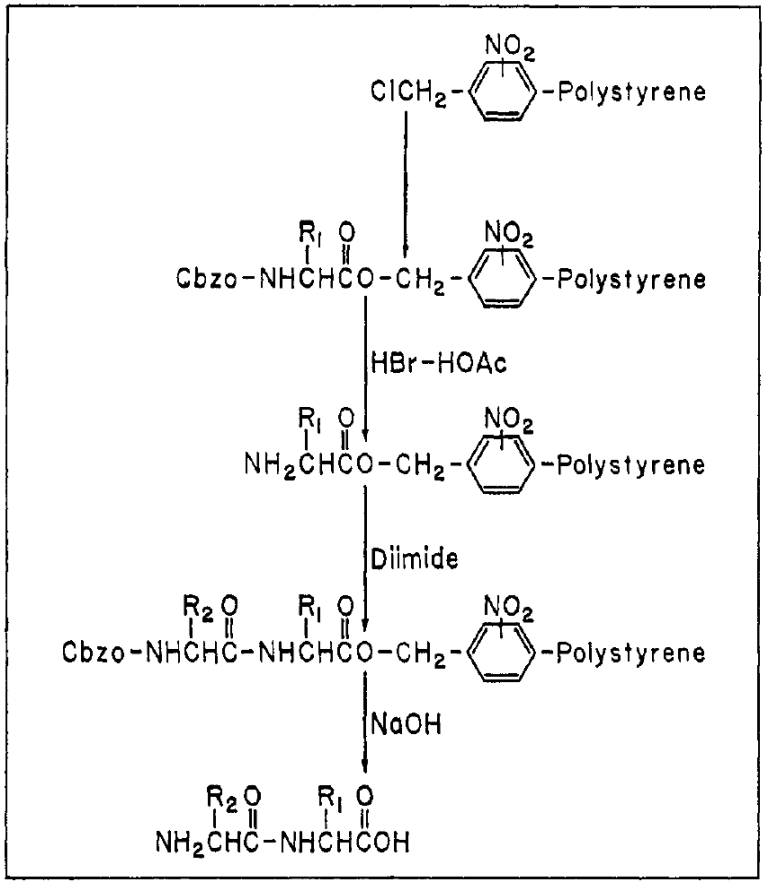


Fig. 1.—The scheme for solid phase peptide synthesis.

J.Am.Chem.Soc., **85**(14),2149-2154(1963)

BULLETIN OF THE CHEMICAL SOCIETY OF JAPAN VOL. 40 2164—2167 (1967)

Use of Anhydrous Hydrogen Fluoride in Peptide Synthesis. I. Behavior of Various Protective Groups in Anhydrous Hydrogen Fluoride*[1]

Shumpei SAKAKIBARA, Yasutsugu SHIMONISHI, Yasuo KISHIDA, Masanori OKADA*[2] and Hideo SUGIHARA*[3]

Peptide Center, Institute for Protein Research, Osaka University, Kita-ku, Osaka

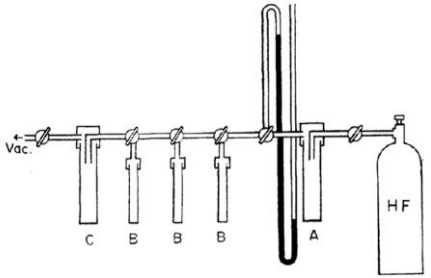


Fig. 1. HF-reaction apparatus suitable for samples of less than one gram.
A Cylinder for purification and measurement of volume of HF: 30 mm×200 mm
B Cylinder for HF reaction: 20 mm×150 mm
C Trap: 30 mm×200 mm

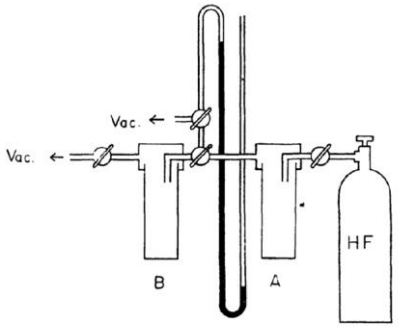


Fig. 2. HF-reaction apparatus suitable for samples of about 10 g.
A Cylinder for purification and measurement of volume of HF: 50 mm×200 mm
B Cylinder for HF reaction: 50 mm×200 mm

榊原開発による無水フッ化水素反応装置(ペプチド合成

Proc. Natl. Acad. Sci. USA
Vol. 95, pp. 13549–13554, November 1998
Biochemistry

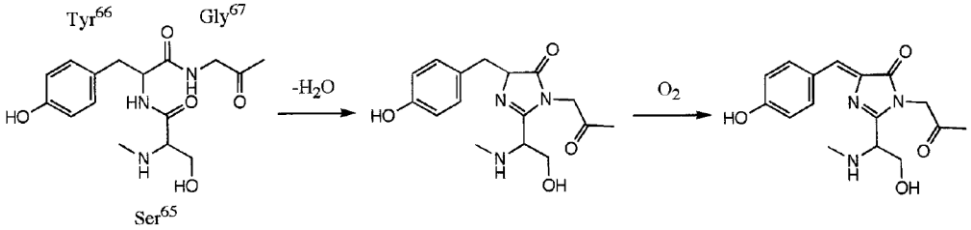
Chemical synthesis of the precursor molecule of the *Aequorea* green fluorescent protein, subsequent folding, and development of fluorescence

(*N*-[(9-hydroxymethyl)-2-fluorenyl]succinamic acid resin/segment condensation reaction/maximum protection strategy/protein folding/autocyclodehydration)

YUJI NISHIUCHI*, TATSUYA INUI*, HIDEKI NISHIO*, JÓZSEF BÓDI*, TERUTOSHI KIMURA*, FREDERICK I. TSUJI†, AND SHUMPEI SAKAKIBARA*‡

*Peptide Institute, Protein Research Foundation, Minoh-shi, Osaka 562, Japan; and †Marine Biology Research Division, Scripps Institution of Oceanography, University of California at San Diego, La Jolla, CA 92093

GFP



A

```
MSKGEELFTG VVPILVELDG DVNGQKFSVS GEGEGDATYG KLTLKFICTT GKLPVPWPTL  60
VTTFSYGVQC FSRYPDHMKQ HDFFKSAMPE GYVQERTIFY KDDGNYKTRA EVKFEGDTLV 120
NRIELKGIDF KEDGNILGHK MEYNYNSHNV YIMADKPKNG IKVNFKIRHN IKDGSVQLAD 180
HYQQNTPIGD GPVLLPDNHY LSTQSALSKD PNEKRDHMIL LEFVTAAGIT HGMDELYK   238
```

B

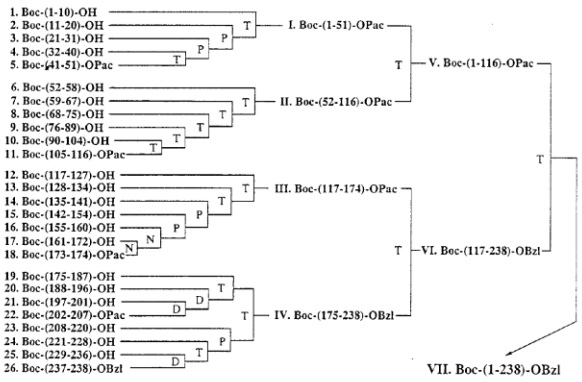
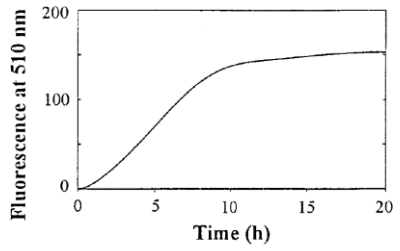


FIG. 1. (*A*) Primary structure of GFP. (*B*) Segments 1–26 and their coupling routes. Coupling solvents: D, DMF; N, *N*-methylpyrrolidone; P, phenol/CHL (1:3 vol/vol); T, TFE/CHL (1:3 vol/vol).

A



B

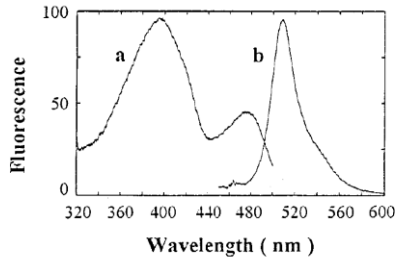


FIG. 2. (*A*) Time course of development of fluorescence in synthetic precursor molecule. Fluorescence intensity is expressed in relative units. (*B*) Fluorescence excitation and emission spectra of synthetic GFP. Curve a is excitation spectrum measured with excitation monochromator set at a band pass of 5 nm and an emission wavelength fixed at 510 nm; curve b is emission spectrum measured with emission monochromator set at band pass of 5 nm and an excitation wavelength fixed at 400 nm. Synthetic GFP was in 0.1 M Tris·HCl buffer (pH 8.0) containing 0.06 M Gdn·HCl, 1 mM DTT, 50 mM NaCl and 1 mM EDTA. Concentration of GFP: 3.7×10^{-7} M. Scan speed: 60 nm/min.

Letters in Peptide Science, **8:** 319–330, 2002.
KLUWER/ESCOM

Synthesis of amyloid β-peptides in solution employing chloroform-phenol mixed solvent for facile segment condensation of sparingly soluble protected peptides

Tatsuya Inui, József Bódi, Hideki Nishio, Yuji Nishiuchi* & Terutoshi Kimura
Peptide Institute Inc., Protein Research Foundation, Minoh-shi, Osaka 562-8686, Japan
(Author for correspondence, e-mail: yuji@peptide.co.jp, fax: +81 727 29 4124)*

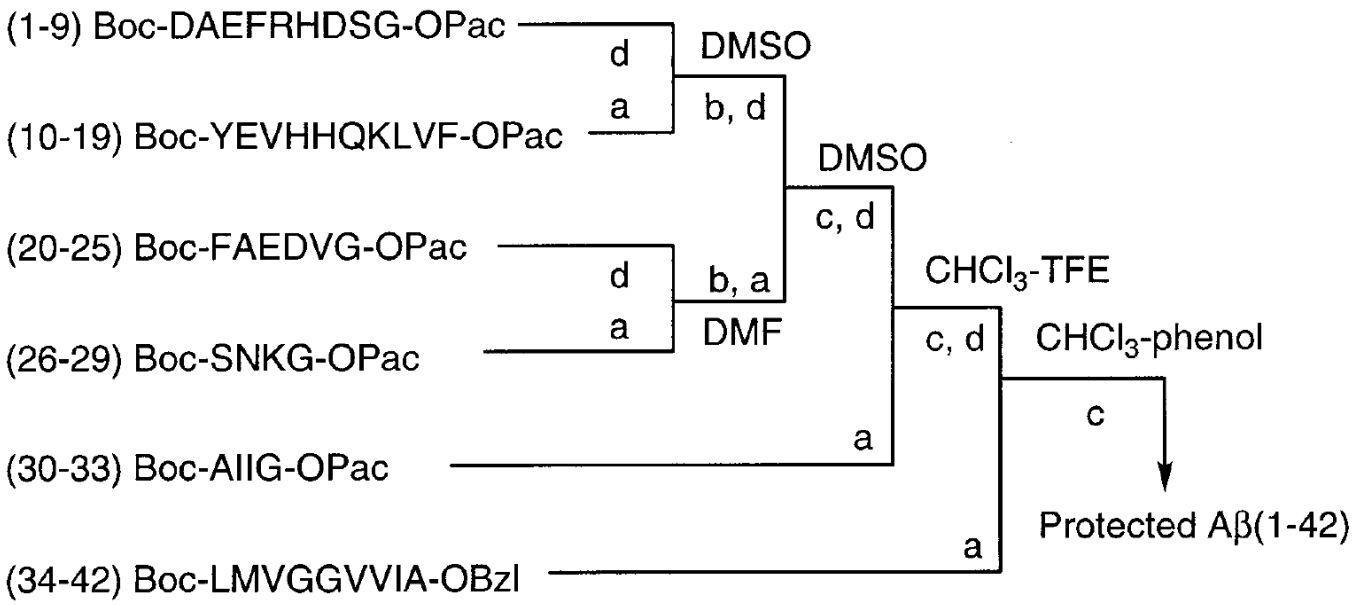


Figure 1. Sequence of segment condensation reaction for the synthesis of Aβ(1-42). (a) TFA; (b) EDC/HOBt; (c) EDC/HOOBt; (d) Zn/AcOH-HFIP.

https://www.peptide.co.jp/catalog/f-cat?k_code=4349-v

Volume 148, number 2 FEBS LETTERS November 1982

Primary and secondary structure of conotoxin GI, a neurotoxic tridecapeptide from a marine snail

Yuji Nishiuchi and Shumpei Sakakibara*

Peptide Institute, Protein Research Foundation, Minoh-shi, Osaka 562, Japan

Received 14 September 1982

To determine the mode of disulphide bond formation in conotoxin GI, a tridecapeptide amide with 4 Cys residues, all 3 of its peptides having different modes of disulphide-bond formation were synthesized by solution procedure using selectively removable protective groups at the Cys residues. After deprotection with HF, one pair of acetamidomethyl groups was left unremoved, and then two sets of disulphide bonds were formed selectively. The toxic potency in mice of one product was comparable with that reported for native conotoxin GI and was almost 10-fold as high as that of the other two products. The toxicity of the native toxin reportedly is not regenerated upon reduction and reoxidation, but this study showed that the most toxic product was the most readily formed one.

	5	10	13
Conotoxin GI:	Glu-Cys-Cys-Asn-Pro-Ala-Cys-Gly-Arg-	His-Tyr-Ser-	Cys-NH_2
Conotoxin GIA:	Glu-Cys-Cys-Asn-Pro-Ala-Cys-Gly-Arg-	His-Tyr-Ser-	Cys-Gly-Lys-NH_2
Conotoxin GII:	Glu-Cys-Cys-His-Pro-Ala-Cys-Gly-Lys-	His-Phe-Ser-	Cys-NH_2

Fig.1. The primary structure of conotoxins.

※トリスルフィドペプチド類も合成準備中です

chemical biology/chemical medicine

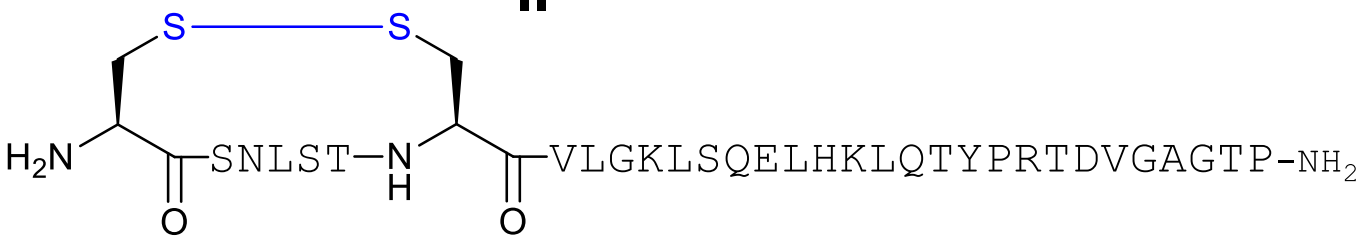
human calcitonin

CGNLSTCMLGTYTQDFNKFHTFPQTAIGVGAP-NH_2

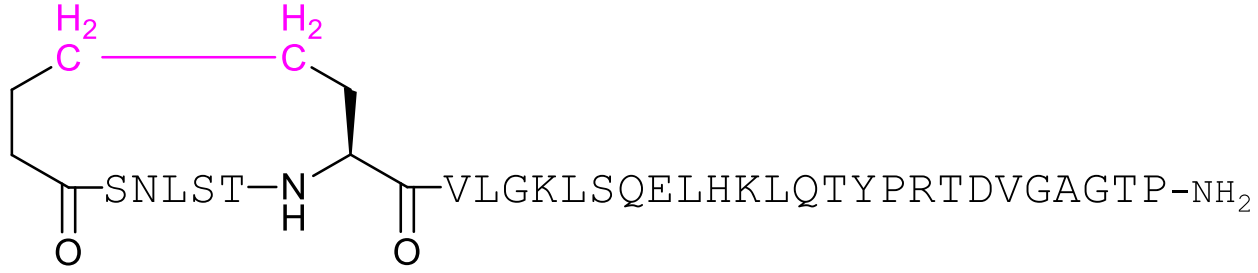
eel calcitonin

CSNLSTCVLGKLSQELHKLQTYPRTDVGAGTP-NH_2

II



elcatonin (deamino-dicarba-eel calcitonin)



Synthesis of Eel-Calcitonin and [Asu^{1,7}]-Eel-Calcitonin: Contribution of the Disulfide Bond to the Hormonal Activity

T. Morikawa, E. Munekata, S. Sakakibara, T. Noda[1], and M. Otani[1]

Peptide Institute, Protein Research Foundation, 476 Ina, Minoh, Osaka 562 (Japan); and Research Laboratory, Toyo Jozo Co., Ltd., Ohito, Shizuoka 410–23 (Japan), 20 April 1976.

elcatonin (deamino-dicarba-eel calcitonin)

Conformation analysis of eel calcitonin

Comparison with the conformation of elcatonin

Kiyoshi OGAWA[3], Shigenori NISHIMURA[1], Susumu UCHIYAMA[2], Kaoru KOBAYASHI[2], Yoshimasa KYOGOKU[1], Mitsuo HAYASHI[3] and Yuji KOBAYASHI[1,2]

[1] Institute for Protein Research Osaka University, Osaka, Japan
[2] Faculty of Pharmaceutical Sciences, Osaka University, Osaka, Japan
[3] Institute for Life Science Research, Asahi Chemical Industry Co. Ltd, Shizuoka, Japan

Eur. J. Biochem. *257*, 331−336 (1998)

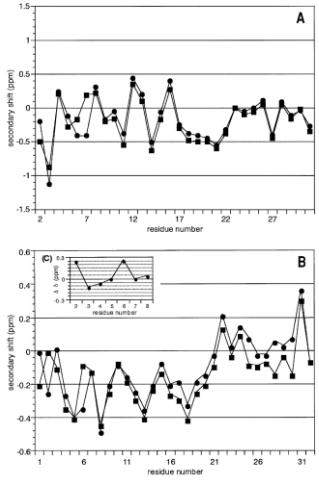
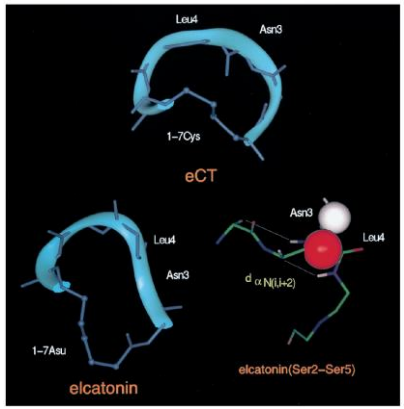
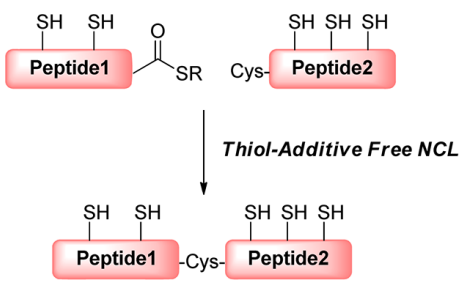


Fig. 4. Secondary shift differences versus amino acid residue number for NH (A) and CαH (B) proton resonances. The circles and squares denote elcatonin and eCT, respectively. Secondary shift differences ($\Delta\delta$) of CαH (C) between eCT and elcatonin. Secondary shift = δNH, CαH (observed) − δNH, CαH (random coil). $\Delta\delta = \delta$CαH (secondary shift of eCT) − δCαH (secondary shift of elcatonin).



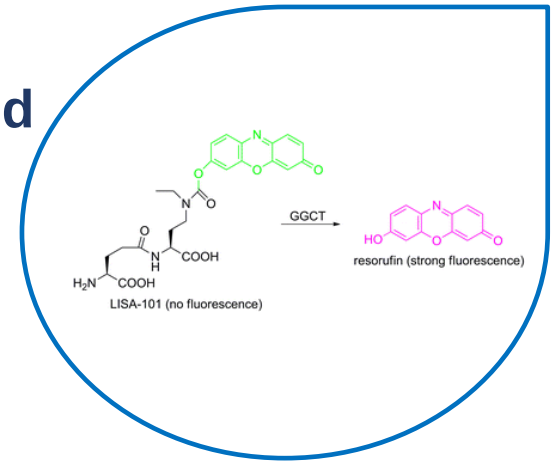
History of the cutting-edge researches

Difficult peptide synthesis

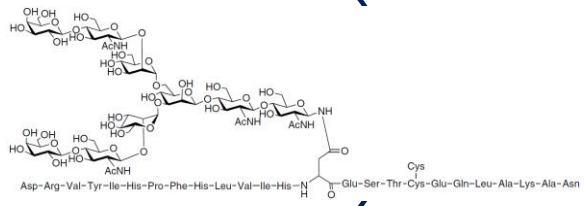


Peptide Institute

Chemical biology-oriented compounds



Glycopeptides synthesis



Peptide Institute *after 2011*

--- Difficult peptide synthesis

Evaluation of **acid-labile S-protecting groups** to prevent Cys racemization in Fmoc solid-phase peptide synthesis *J Pept Sci*
Postsynthetic Modification of Unprotected Peptides via **S-Tritylation Reaction** *OrgLett*
O-Acyl isopeptide method: development of an O-acyl isodipeptide unit for Boc SPPS and its application to the synthesis of A-beta1-42 isopeptide *J Pept Sci*
Synthesis of Cysteine-Rich Peptides by **Native Chemical Ligation without Use of Exogenous Thiols** *OrgLett*
Regioselective **formation of multiple disulfide bonds** with the aid of postsynthetic S-tritylation *OrgLett*

--- Glycopeptides synthesis

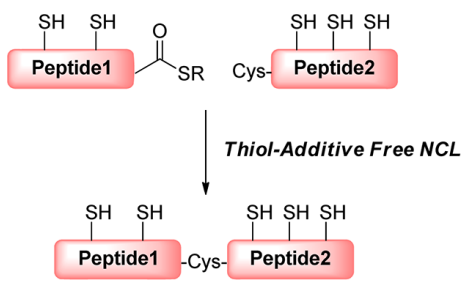
Big angiotensin-25: A novel glycosylated angiotensin-related peptide isolated from human urine. *BBRC*
Chemical synthesis of human **adiponectin(19-107)** bearing post-translational glycosylation *TetLett*
Ordered self-assembly of the collagenous domain of adiponectin with **noncovalent interactions via glycosylated lysine** residues *FEBS Lett*

--- Chemical biology-oriented compounds

A **Fluorogenic Probe** for gamma-Glutamyl Cyclotransferase: Application of an Enzyme-Triggered O-to-N Acyl Migration-Type Reaction *ChemBioChem*
Non-pretreated **O-acyl isopeptide of amyloid beta peptide 1-42** is monomeric with a random coil structure but starts to aggregate in a concentration-dependent manner *BMCL*
A **GGCT fluorogenic probe**: design, synthesis and application to cancer-related cells *OBC*
Uptake of a **fluorescent L-glucose derivative 2-NBDLG** into three-dimensionally accumulating insulinoma cells in a phloretin-sensitive manner *Hum Cell*
Syntheses of **D-Glucose Derivatives Emitting Blue Fluorescence** through Pd-Catalyzed C-N Coupling *OrgLett*

History of the cutting-edge researches

Difficult peptide synthesis



Peptide Institute

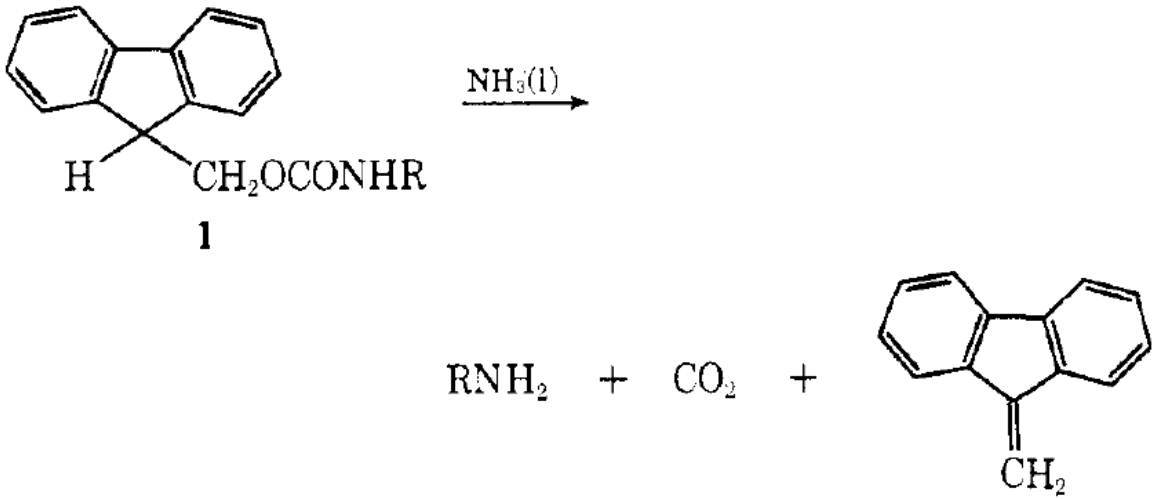
Chemical biology-oriented compounds

Glycopeptides synthesis

The 9-Fluorenylmethoxycarbonyl Function, a New Base-Sensitive Amino-Protecting Group

Louis A. Carpino,[7] Grace Y. Han
Department of Chemistry, University of Massachusetts-Amherst
Amherst, Massachusetts 01002
Received July 6, 1970

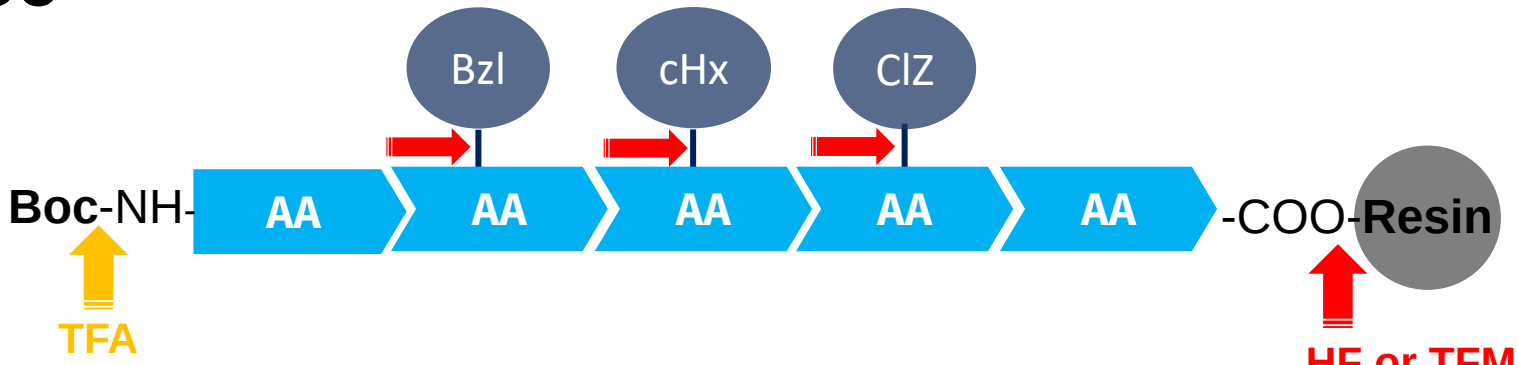
Journal of the American Chemical Society / 92:19 / September 23, 1970



Chemical Synthesis

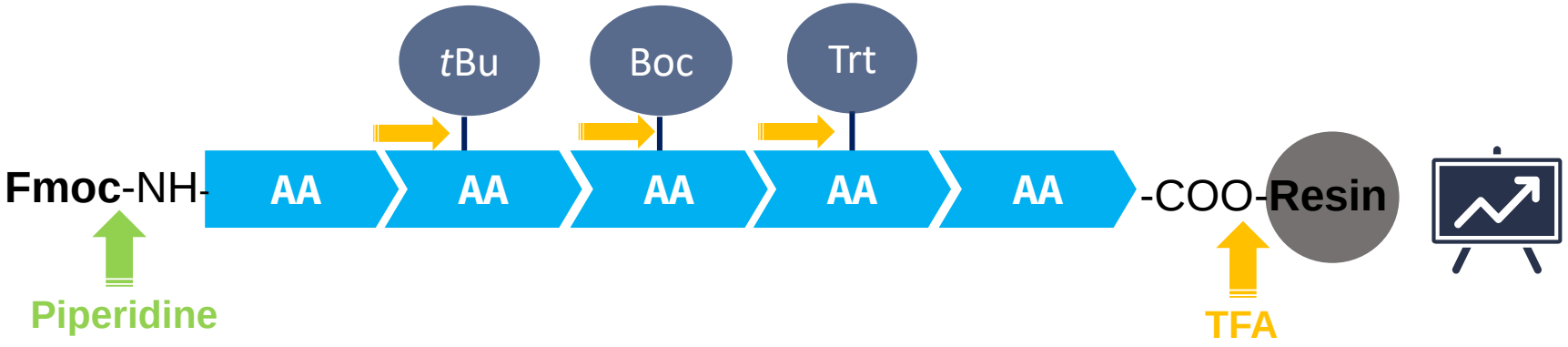
Boc

Solid/ Liquid OK



ex) Tyr(SO_3H)

Fmoc



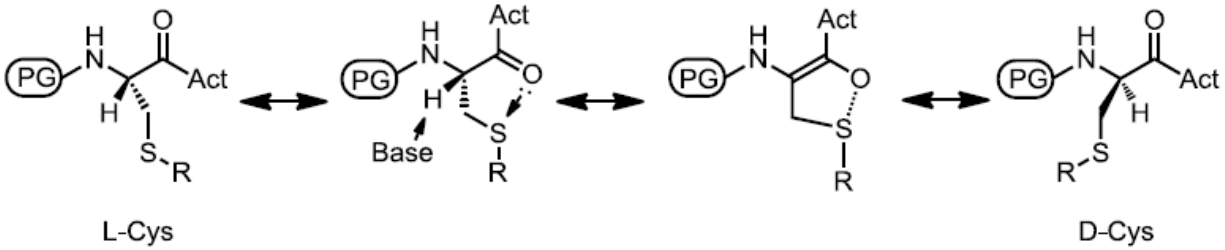
ex) Asp-Gly

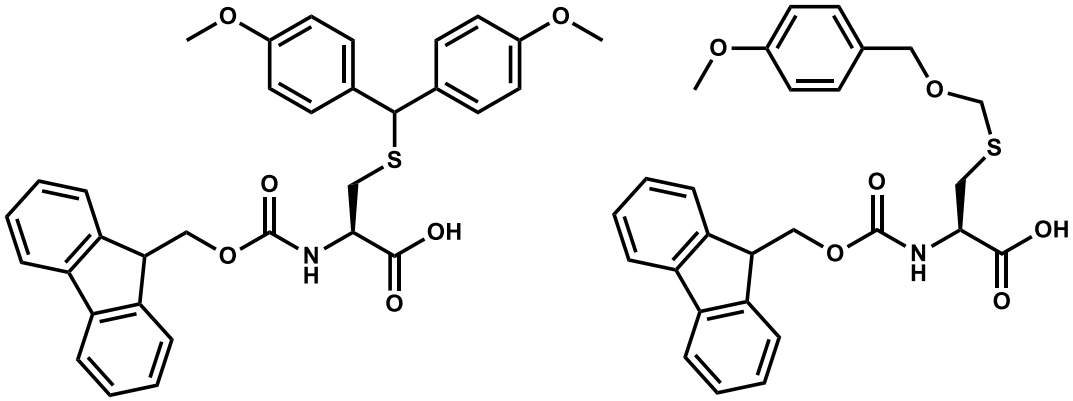
Cysのラセミ化

縮合中のラセミ化　→ 保護基をDdmに変更することで抑制

Ex) Gly-Cys-Phe-NH2合成

Cys(Trt): 8.0%　Cys(Ddm): 0.4%





H. Hibino, Y. Miki, Y. Nishiuchi, *J. Pept. Sci.*, **20**, 30 (2014).

https://www.peptide.co.jp/catalog/f-cat?k_code=2330

Hisのラセミ化

縮合中のラセミ化　→ 保護基をMBomに変更することで抑制
Ex) Z-Ala-His-Pro合成
His(Trt): 3.2%　His(MBom): <0.2%

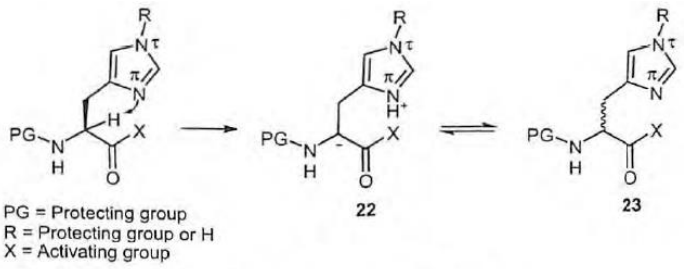
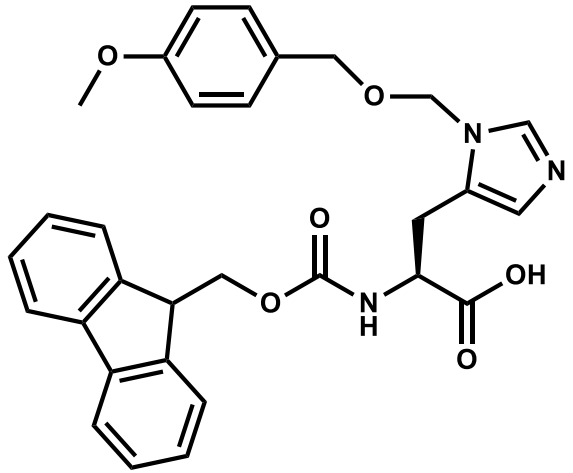


FIGURE 11.5 His racemization via H^{α} abstraction by side chain N^{π}.

Table 2. Epimerization of His(X) under condensation conditions.

Reagents	Imidazole protections	Preactivate or In situ	Epimerization (%D)
HBTU	Trt	Preactivate	3.2
DIC, HOBt	Trt	Preactivate	0.9
HBTU	Trt	In situ	1.2
HBTU	3-MBom	Preactivate	<0.2
HBTU	1-MBom	Preactivate	16

Determined by HPLC (220 nm)



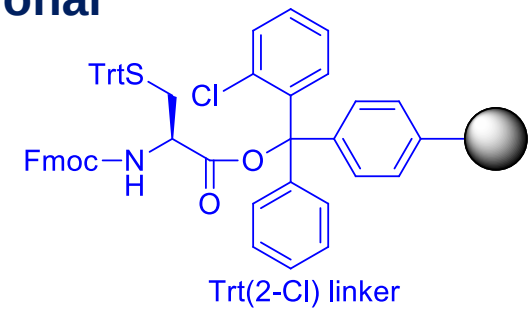
Fmoc-His(MBom)

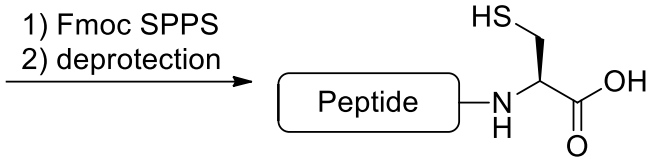
H. Hibino, Y. Nishiuchi, *Tet. Lett.*, **52**, 4947 (2011).

https://www.peptide.co.jp/catalog/f-cat?k_code=2328

Epimerization-free synthesis of C-terminal Cys

Conventional method





724 Communications to the Editor *Chem. Pharm. Bull.* **42**(3) 724—726 (1994) Vol. 42, No. 3

RACEMIZATION-FREE SYNTHESIS OF C-TERMINAL CYSTEINE-PEPTIDE USING 2-CHLOROTRITYL RESIN

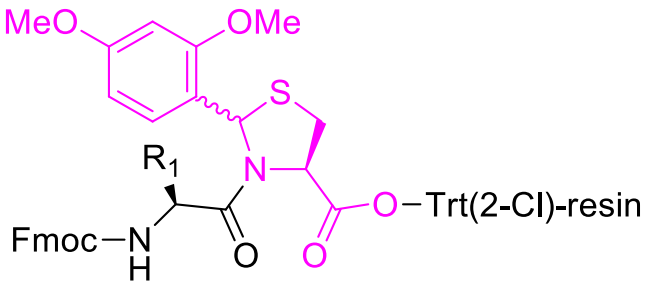
Yoichi FUJIWARA, Kenichi AKAJI, and Yoshiaki KISO*

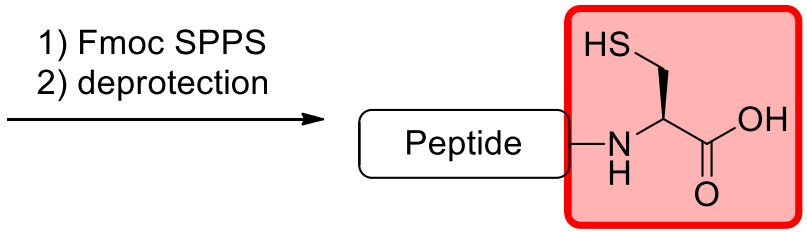
Department of Medicinal Chemistry, Kyoto Pharmaceutical University, Yamashina-ku, Kyoto 607, Japan

This work

√ Epimerization-free synthesis of C-terminal Cys peptide-acid

√ No production of β-piperidinoalanine



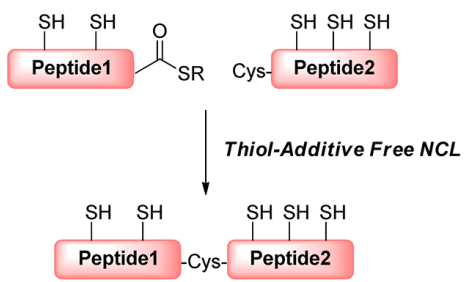


Pseudoproline method was developed as secondary structure disrupting, solubilizing building blocks in peptide synthesis. Haack, T.; Mutter, M. *Tetrahedron Lett.* **1992**, *33*, 1589.

J.Org.Chem., **85**(3),1674-1679(2020)

History of the cutting-edge researches

Difficult peptide synthesis



Peptide Institute

Chemical biology-oriented compounds

Glycopeptides synthesis

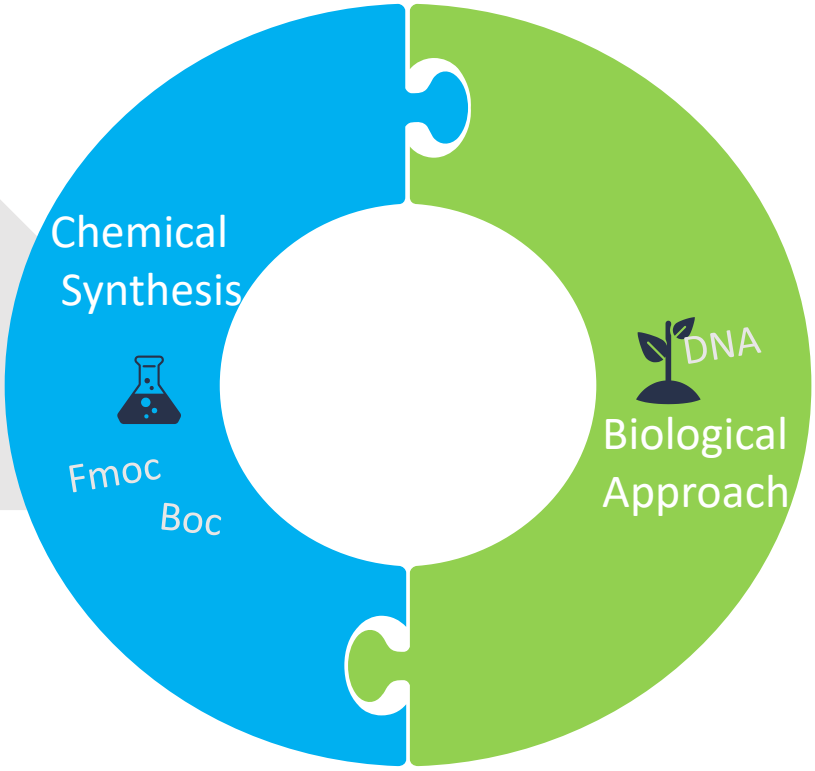
Protein preparation methods

solid-phase synthesis

thioester method/NCL

liquid phase synthesis

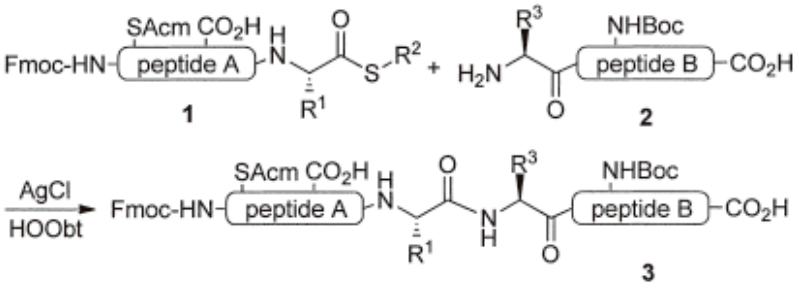
segment condensation



	化学的	生物学的
非天然型アミノ酸の導入	○	△
化学修飾 （糖鎖・リン酸化・硫酸化等）	○	×

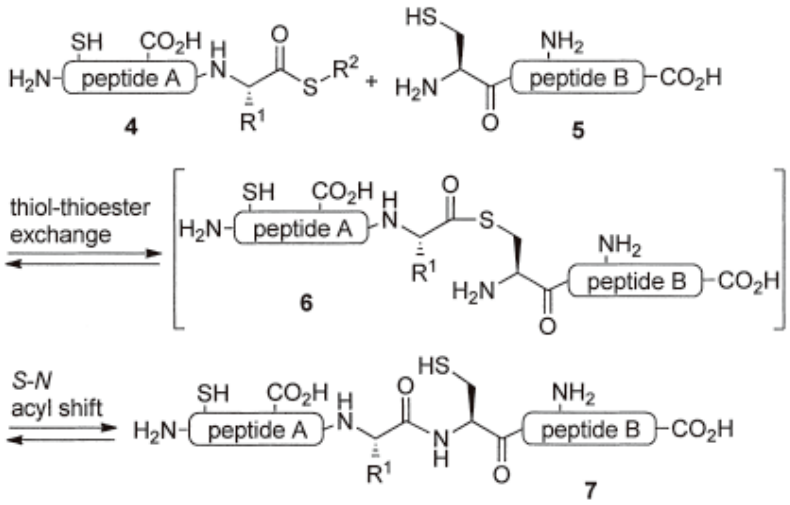
Ligation (Aimoto, Kent)

(A) Thioester Method



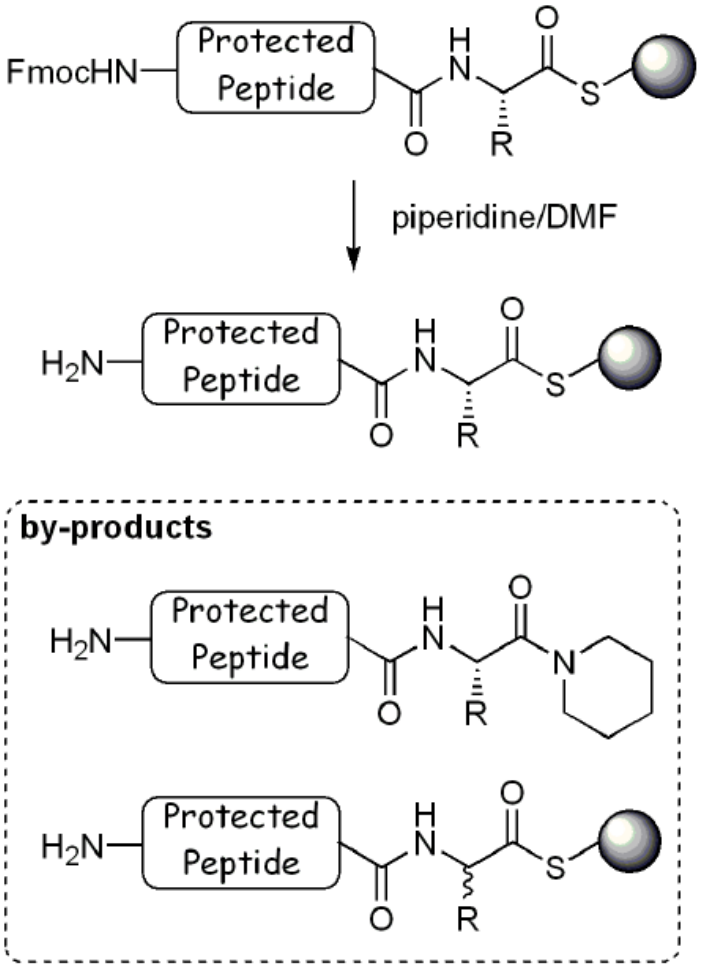
a) Aimoto, *S. Bull. Chem. Soc. Jpn*. **1991**, 111.

(B) Native Chemical Ligation **All free peptide : 各ユニット精製しやすい**



b) Kent, S, B, H. *Science*. **1994**, 776.

Fmoc法でのチオエステル合成の問題点



製造レベルの現状ではBoc法が総収率はよいので、第一選択である。

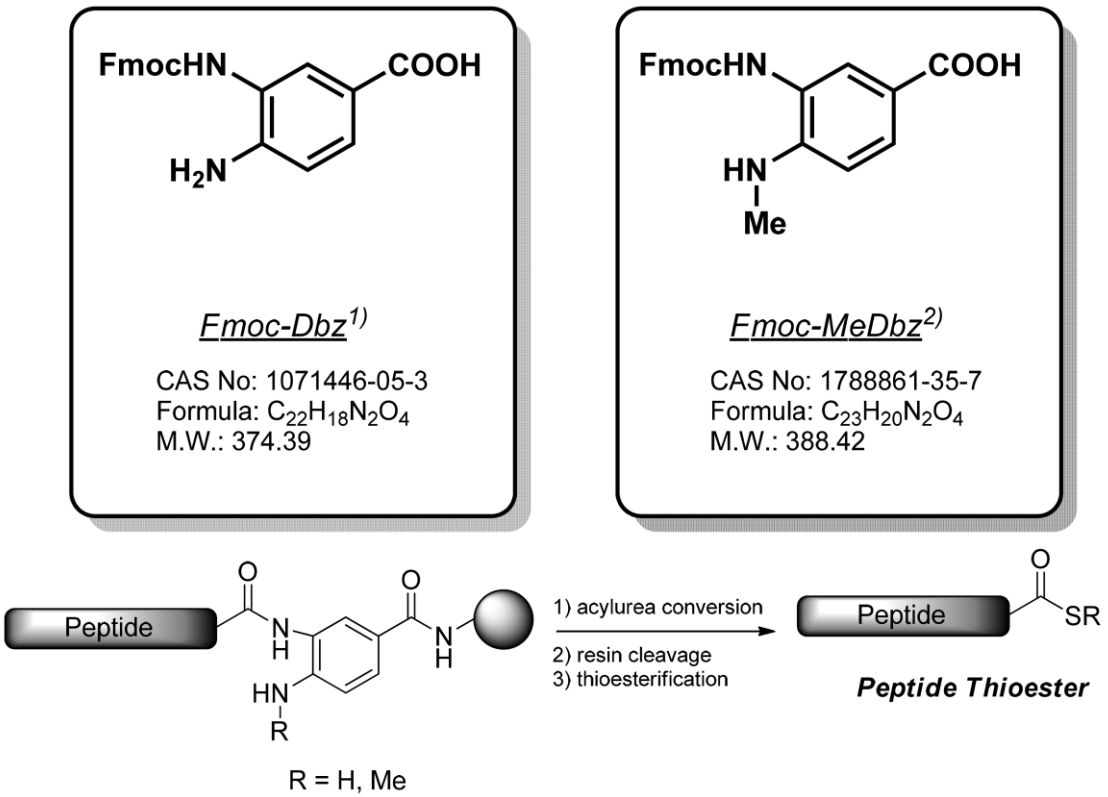
↓しかし

汎用性

Fmoc strategy>>Boc strategy

- 固相合成機の劣化
- HF装置が扱えるか（当社は〇）
- 酸に弱い糖、リン酸ペプチドの合成

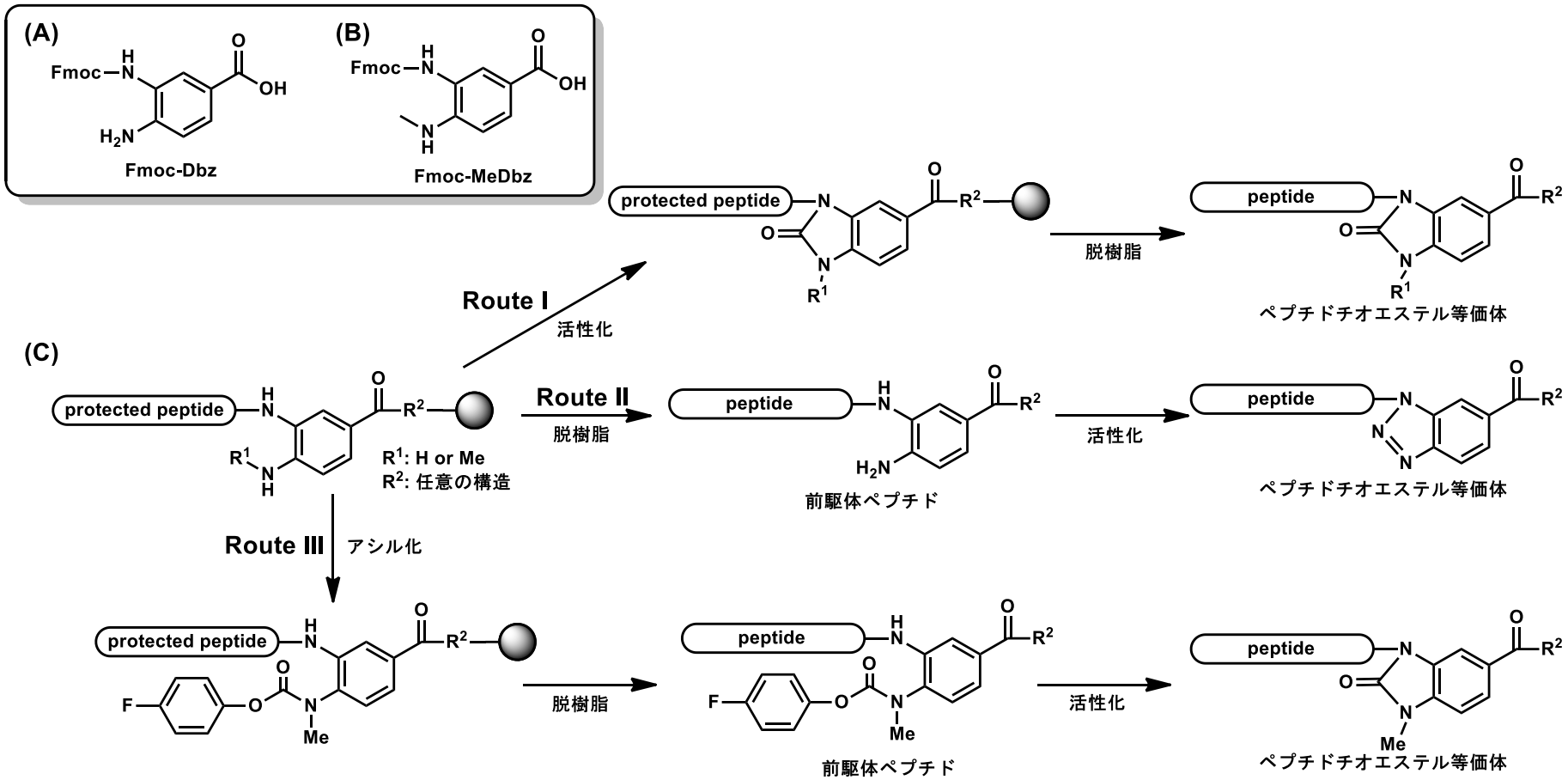
For the preparation of thioester equivalents (N-Acylurea) by Fmoc SPPS



Reference
1) J.B. B-Canosa, and P.E. Dawson, *Angew. Chem. Int. Ed.*, **47**, 6851 (2008).
2) J.B. B-Canosa, B. Nardone, F. Albericio, and P.E. Dawson, *J. Am. Chem. Soc.*, **137**, 7197 (2015).

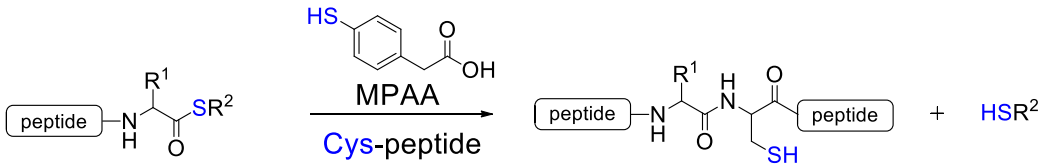
https://www.peptide.co.jp/catalog/f-cat?k_code=2332
https://www.peptide.co.jp/catalog/f-cat?k_code=2331

Fmoc-Dbzの活性化



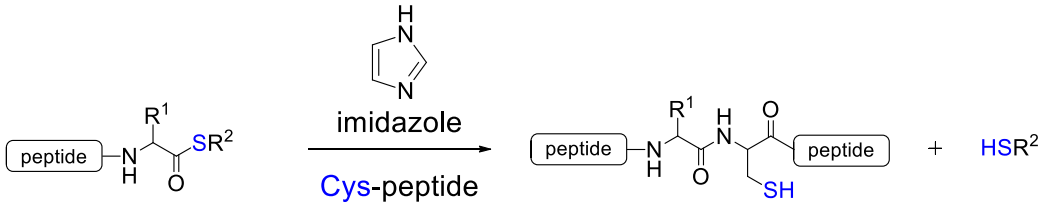
Thiol additive-free ligation

Conventional method: *necessity of purification before desulfurization*



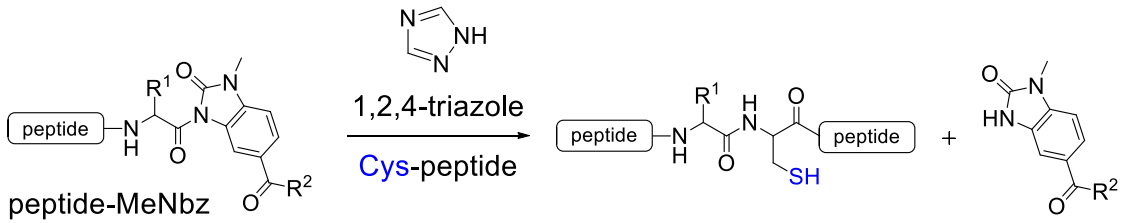
prepared by **Boc** SPPS

Imidazole-aided NCL using peptide-thioester: *compatible with one-pot desulfurization*



prepared by **Boc** SPPS

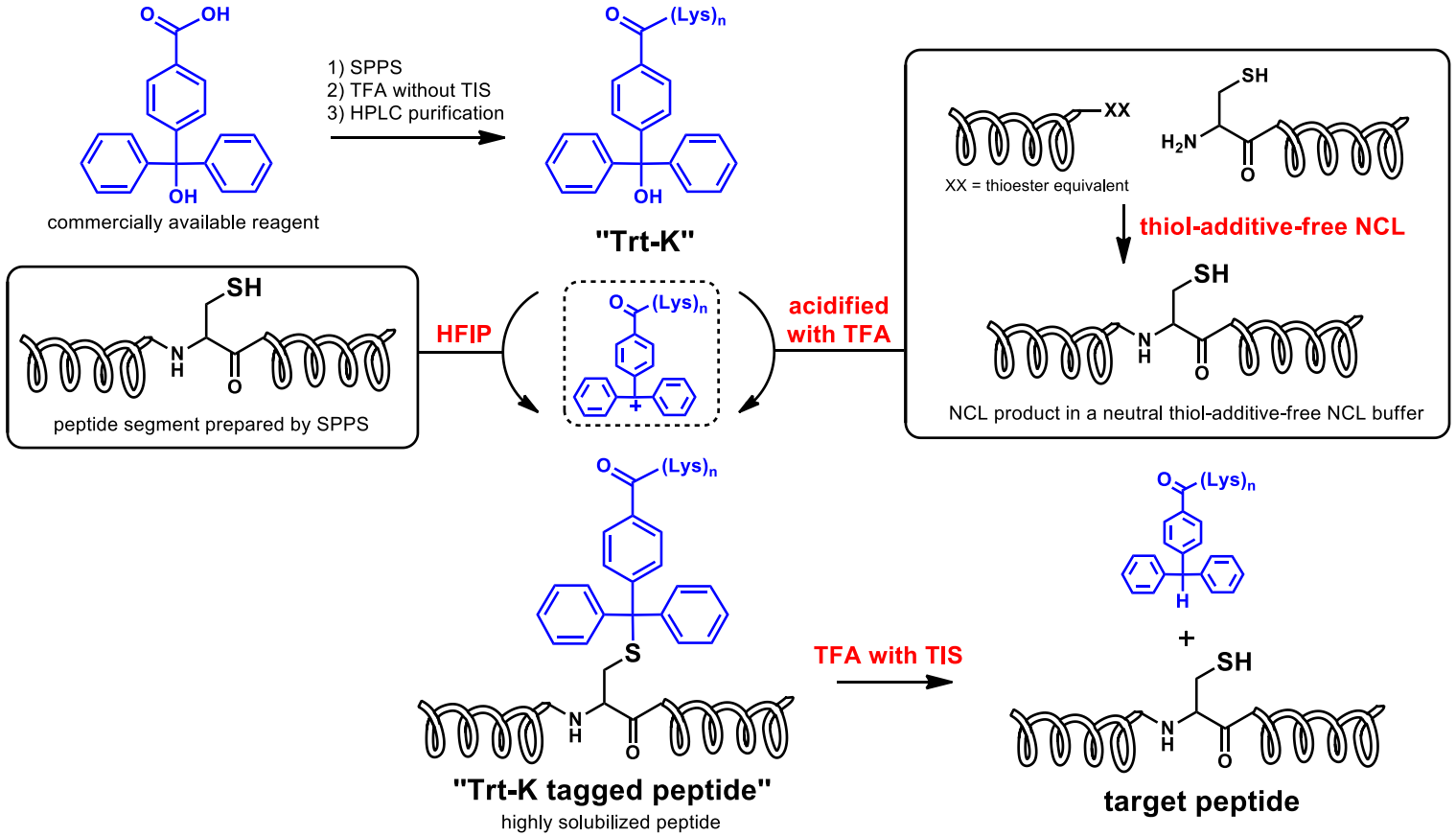
Triazole-aided NCL using peptide-MeNbz: *compatible with one-pot Cys-modification (e.g. desulfurization)*



prepared by **Fmoc** SPPS

K. Sakamoto *et al. Chem. Eur. J.*, **22**, 2106 (2016)
K. Sakamoto *et al. Chem. Commun.*, **53**, 12236 (2017)

Trt-K as a solubilizing tag



This tag contains oligo-Lys residues and readily attached to the Cys-residue of free peptide in an acidic condition, even in the acidified-ligation mixture in the absence of thiol additives.

S. Tsuda *et al. Angew. Chem. Int. Ed.*, **57**, 2105 (2018)

Triazole-NCL: Aggregative Capsid Protein of HBV

MDIDPYKEFG ATVELLSFLP SDFFPSVRDL LDTAAALYRD
ALESPEHCSP HHTALRQAIL CWGDLMTLAT WVGTNLEDPA
SRDLVVSYVN TNVGLKFRQL LWFHISCLTF GRETVLEYLV
SFGVWIRTPP AYRPPNAPIL STLPETTVV-NH_2

60 106 149

Cp149-NH_2

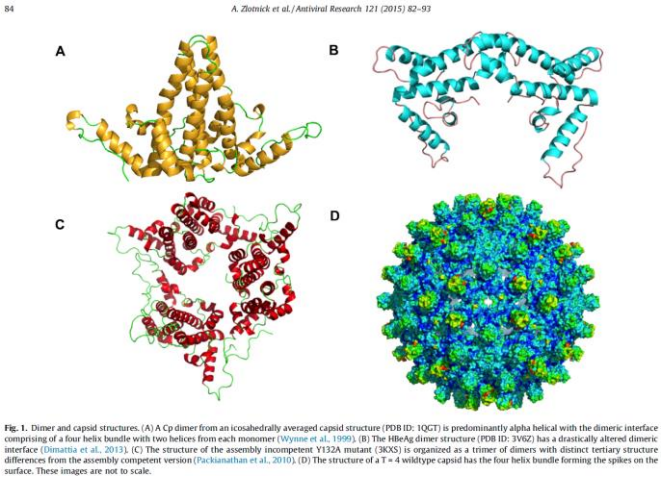
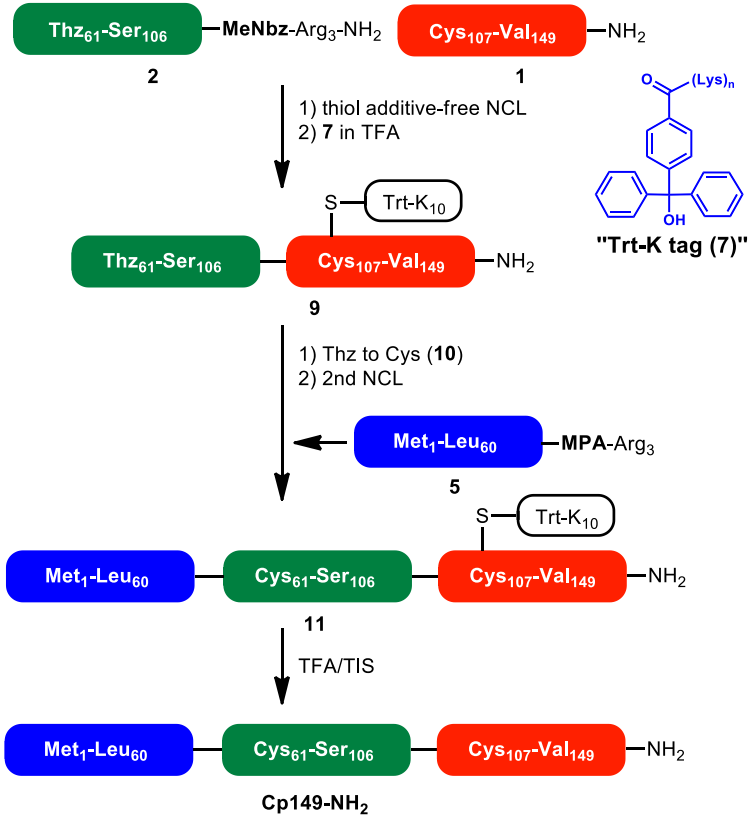


Fig. 1. Dimer and capsid structures. (A) A Cp dimer from an icosahedrally averaged capsid structure (PDB ID: 1QGT) is predominantly alpha helical with the dimeric interface comprising of a four helix bundle with two helices from each monomer (Wynne et al., 1999). (B) The HBeAg dimer structure (PDB ID: 3V6Z) has a drastically altered dimeric interface (Dimattia et al., 2013). (C) The structure of the assembly incompetent Y132A mutant (3IXS) is organized as a trimer of dimers with distinct tertiary structure differences from the assembly competent version (Packianathan et al., 2010). (D) The structure of a T = 4 wildtype capsid has the four helix bundle forming the spikes on the surface. These images are not to scale.



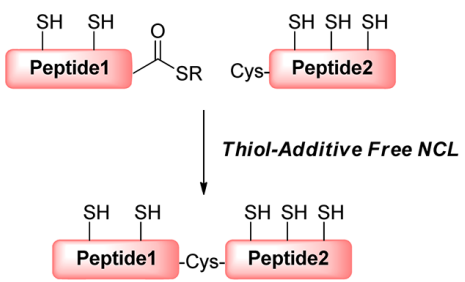
After first triazole-NCL using peptide-MeNbz, TFA solution of Trt-K was added to ligation mixture to introduce the solubilizing tag. Then, after Thz deprotection, N-terminal peptide-thioester was ligated. And final deprotection gave the desired peptide.

イミダゾールおよび1,2,4-トリアゾールを利用したNCLの報告例

1. *Angew. Chem. Int. Ed*. **2018**, *57*, 2105–2109.（**ワンポットNCL-Trt化**）
2. *J. Am. Chem. Soc.* **2018**, *140*, 9020–9024.（**ワンポットNCL-脱硫** (フロー合成)）
3. *Chem. Commun.* **2018**, *54*, 9127–9130.（**ワンポットNCL-脱硫**）
4. *ChemBioChem* **2019**, *20*, 1906–1913.（**ワンポットNCL-Trt化**）
5. *Tetrahedron* **2019**, *75*, 894–905.（**ワンポットNCL-脱硫**）
6. *Angew. Chem. Int. Ed.* **2019**, *58*, 13540–13549.（**NCL反応促進**）
7. *Protein J.* **2020**, *39*, 711–716.（**NCL反応促進**）
8. *J. Am. Chem. Soc.* **2020**, *142*, 19558–19569.（**発現タンパクのワンポットNCL-脱硫**）
9. *Chem. Commun.* **2020**, *56*, 3500–3503.（**NCL反応促進**）
10. *Front. Chem.* **2021**, *9*.（**ワンポットNCL-脱硫**）
11. *J. Org. Chem.* **2023**, *88*, 4546–4553.（**NCL反応促進**）
12. *Org. Lett.* **2023**, *25*, 4715−4719.（**NCL反応促進**）

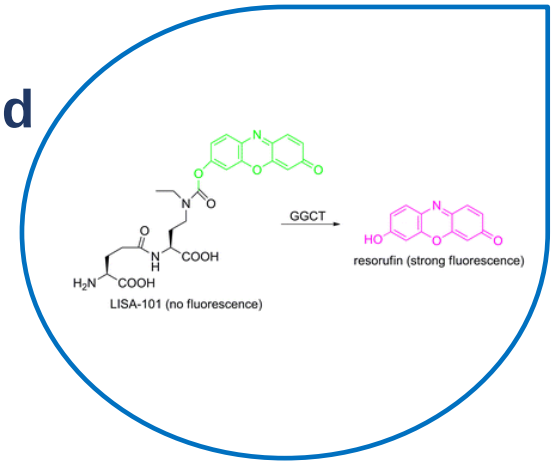
History of the cutting-edge researches

Difficult peptide synthesis

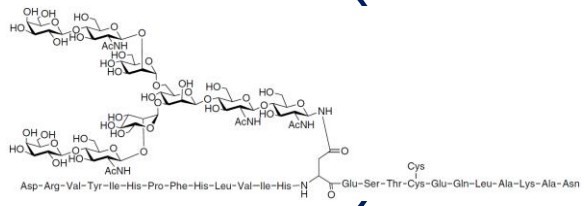


Peptide Institute

Chemical biology-oriented compounds



Glycopeptides synthesis

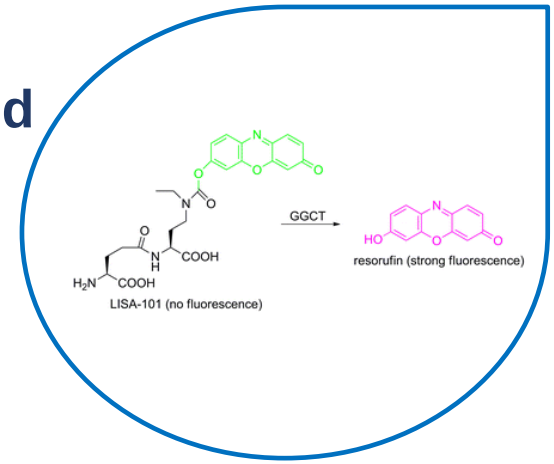


History of the cutting-edge researches

Difficult peptide synthesis

Peptide Institute

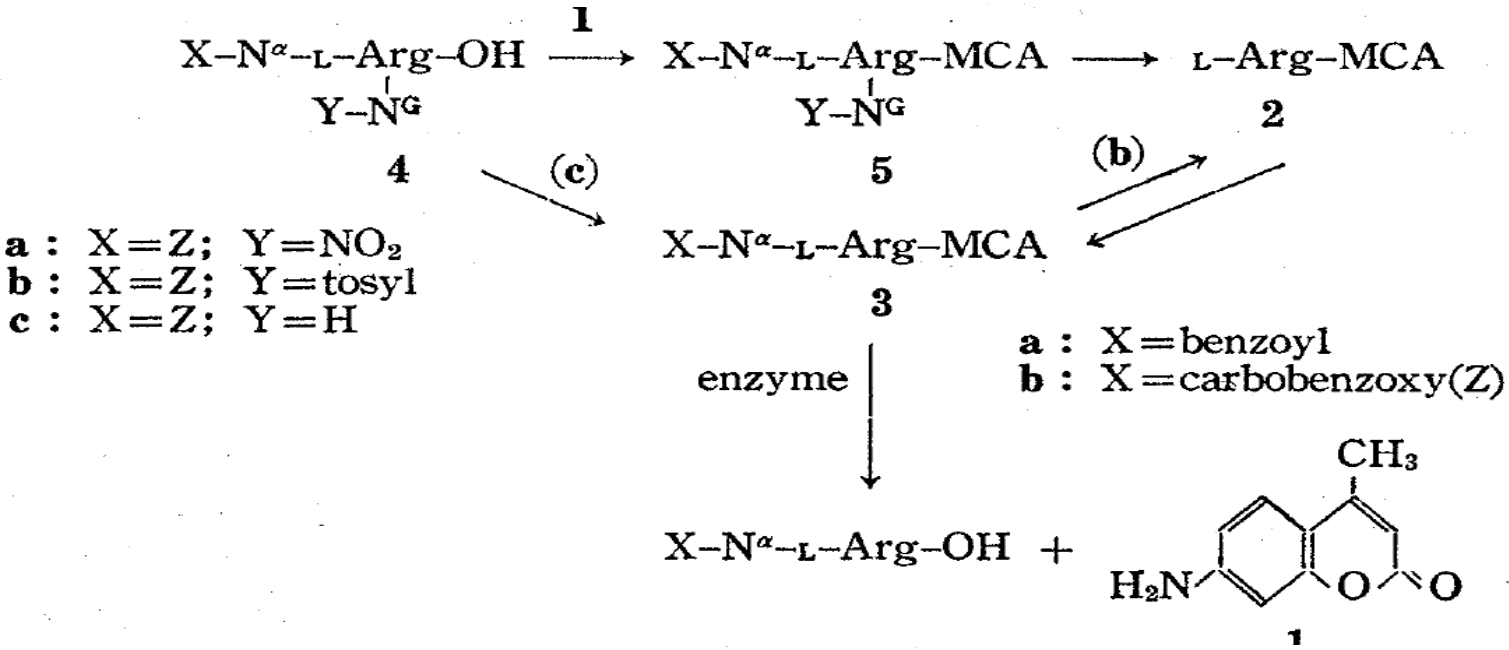
Chemical biology-oriented compounds



Glycopeptides synthesis

History of Chemical biology-oriented compounds

Synthesis of a Key Fluorogenic Amide, L-Arginine-4-methylcoumaryl-7-amide (L-Arg-MCA) and Its Derivatives. Fluorescence Assays for Trypsin and Papain[1)]



Faculty of Pharmaceutical Sciences,
Hokkaido University
Sapporo, 060, Japan

Peptide Institute,
Protein Research Foundation
Minoh, Osaka, 562, Japan

YUICHI KANAOKA
TETSUO TAKAHASHI
HITOSHI NAKAYAMA
KATSUMI TAKADA
TERUTOSHI KIMURA
SHUMPEI SAKAKIBARA

[Chem. Pharm. Bull.
25(11)3126--3128(1977)]

Received September 1, 1977

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History of Chemical biology-oriented compounds

Substrate specificity of alkaline serine proteinase isolated from photosynthetic bacterium, *Rubrivivax gelatinosus* KDDS1☆

Somporn Tanskul,[a] Kohei Oda,[a,*] Hiroshi Oyama,[a] Napavarn Noparatnaraporn,[b] Masahiko Tsunemi,[c] and Katsumi Takada[c]

[a] *Department of Applied Biology, Kyoto Institute of Technology, Matsugasaki, Sakyo-ku, Kyoto 606-8585, Japan*
[b] *Department of Microbiology, Kasetsart University, Jatujak, Bangkok 10903, Thailand*
[c] *Peptide Institute, Inc., Minoh, Osaka 562-8686, Japan*

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Biochemical and Biophysical Research Communications 309 (2003) 547–551
BBRC

FRETS-25Xaa:

D-A2pr(Nma)-Gly-[Zaa]-[Yaa]-Xaa-Ala-Phe-Pro-Lys(Dnp)-D-Arg-D-Arg

Zaa	Yaa
Phe	Pro
Ala	Tyr
Val	Lys
Glu	Ile
Arg	Asp

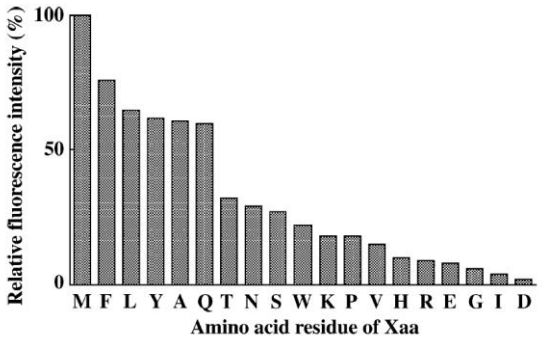

Fig. 1. Primary screening: P_1 preference (the favored Xaa) using FRETS-25Xaa.

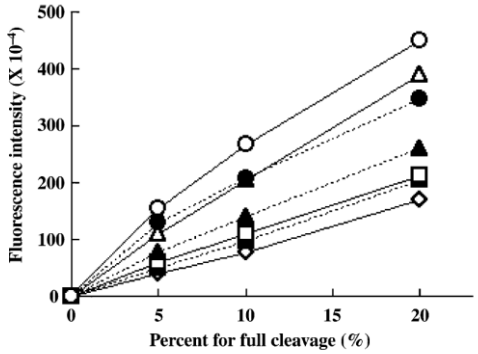

Fig. 2. Secondary screening: P_2 and P_3 preferences using FRETS-25M. D, D-A2 dose pr(Nma); ○, D-GRIM; ●, D-GFIM; △, D-GFKM; ▲, D-GVIM; □, D-GAIM; ■, D-GVKM; ◇, D-GRKM.

https://www.peptide.co.jp/support/useful/list-of-fluoro

British Journal of Haematology, **129**, 93–100 doi:10.1111/j.1365-2141.2005.05420.x

bjh research paper

FRETS-VWF73, a first fluorogenic substrate for ADAMTS13 assay

Koichi Kokame,[1] Yuko Nobe,[1] Yoshihiro Kokubo,[2] Akira Okayama[2] and Toshiyuki Miyata[1]

[1]National Cardiovascular Centre Research Institute, and [2]Department of Preventive Cardiology, National Cardiovascular Centre, Suita, Osaka, Japan

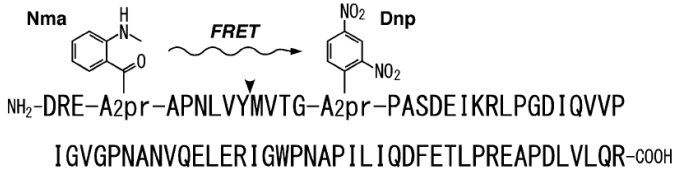

Fig 1. Structure of FRETS-VWF73. Within the 73-amino-acid peptide sequence, corresponding to the region from D1596 to R1668 of von Willebrand factor (VWF), Q1599 and N1610 were substituted with A2pr(Nma) and A2pr(Dnp) respectively. The arrowhead indicates the site cleaved by ADAMTS13.

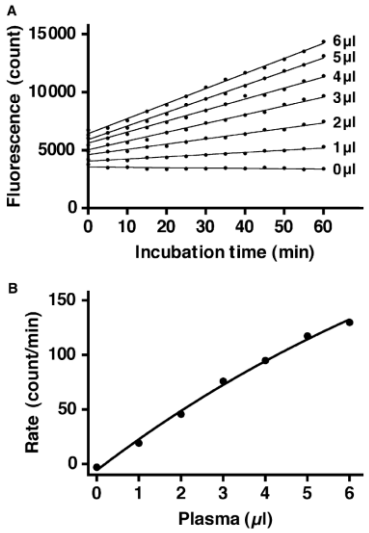

Fig 3. Plasma-dose dependency of FRETS-VWF73 cleavage. (A) Fluorescence was measured at 5-min intervals after the addition of FRETS-VWF73 to 0–6 μl normal plasma. (B) The reaction rates of time points 0 and 60 min were plotted against plasma dosage. Values were fit to a non-linear regression curve.

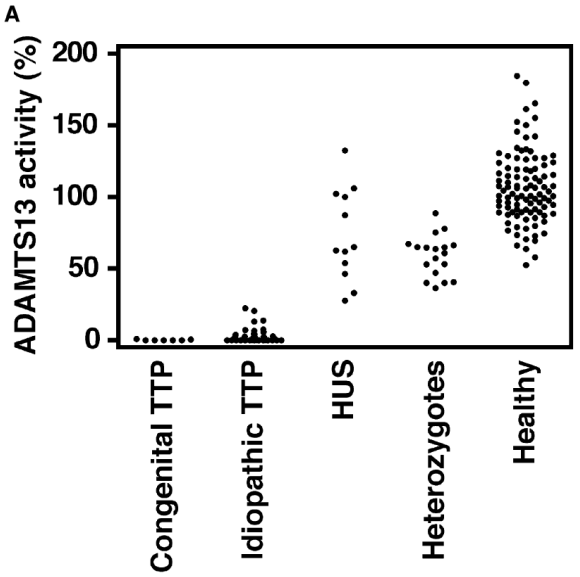

Fig 5. ADAMTS13 activity in plasma from patients and healthy individuals. (A) Relative ADAMTS13 activity was measured using the FRETS-VWF73 assay. FRETS-VWF73 was incubated with 4 μl of plasma from seven congenital thrombotic thrombocytopenic purpura (TTP) patients, 41 idiopathic TTP patients, 12 haemolytic uremic syndrome patients and 18 heterozygotes of ADAMTS13 with critical mutations. Plasma samples from randomly selected 100 healthy individuals were also examined. The relative ADAMTS13 activities were estimated from the standard curve, which was drawn up on the basis of the reaction rates of the pooled plasma prepared from all the 100 healthy individuals. (B) Association of ADAMTS13 activity with gen-

Organic & Biomolecular Chemistry

COMMUNICATION

HAP-01, the first chromogenic substrate for *Aspergillus oryzae* acid protease†

Taku Yoshiya,[a] Nobuo Yamashita,[b] Shugo Tsuda,[a] Koushou Oohigashi,[b] Shun Masuda,[a] Takafumi Kubodera[b] and Takahito Akashi[b]

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DOI: 10.1039/c8ob02766h

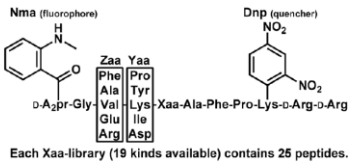

Fig. 1 Structure of FRETS-25Xaa.[6]

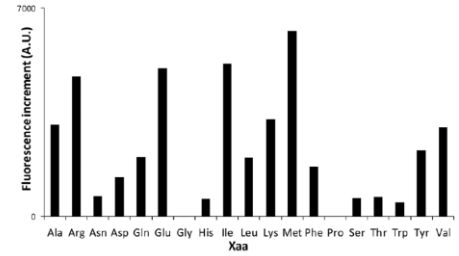

Fig. 2 Primary screening results.

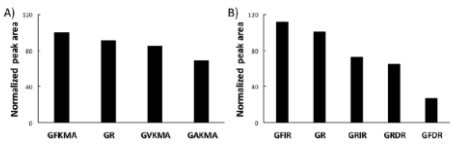

Fig. 3 Selected secondary screening results evaluating sequence of enzymatically cleaved left-side peptide fragments: (A) Xaa = Met, (B) Xaa = Arg. N-terminal D-A_2pr(Nma) is omitted for visibility.

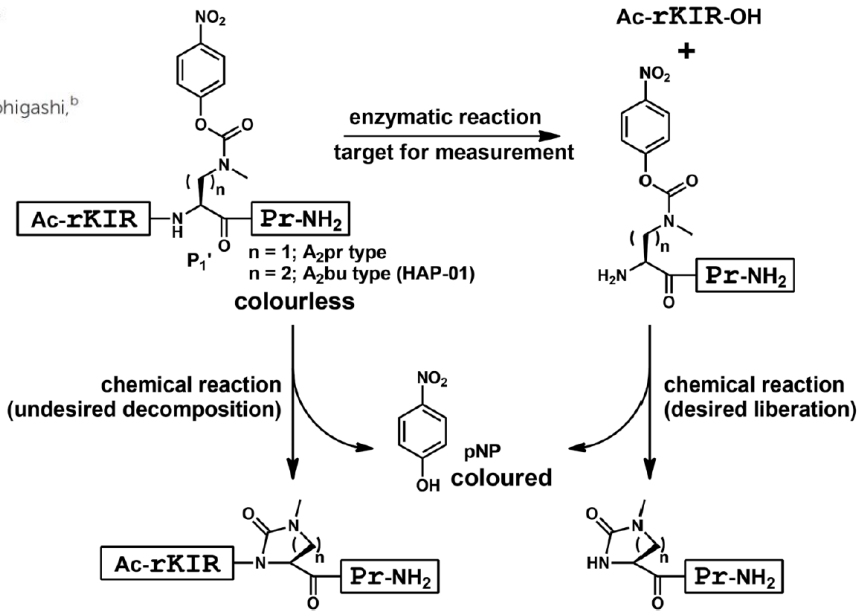

Fig. 4 Structures of putative probes and reaction schemes. [HAP-01: Ac-D-Arg-Lys-Ile-Arg-A_2bu(Me,CO-pNP)-Pro-D-Arg-NH_2].

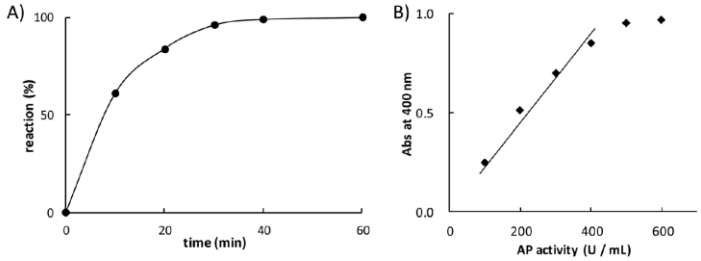

Fig. 5 (A) Time course of the enzymatic digestion of HAP-01 monitored by HPLC. (B) AP activity can be quantified using HAP-01 by UV absorption at 400 nm. Solid line represents a regression line ($R > 0.98$).

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Organic & Biomolecular Chemistry

COMMUNICATION

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A GGCT fluorogenic probe: design, synthesis and application to cancer-related cells†

Taku Yoshiya,*[a] Hiromi Ii,[b] Shugo Tsuda,[a] Susumu Kageyama,[c] Tatsuhiro Yoshiki[b] and Yuji Nishiuchi*[a,d]

Cite this: *Org. Biomol. Chem.*, 2015, **13**, 3182

Received 15th January 2015,
Accepted 28th January 2015

DOI: 10.1039/c5ob00086f

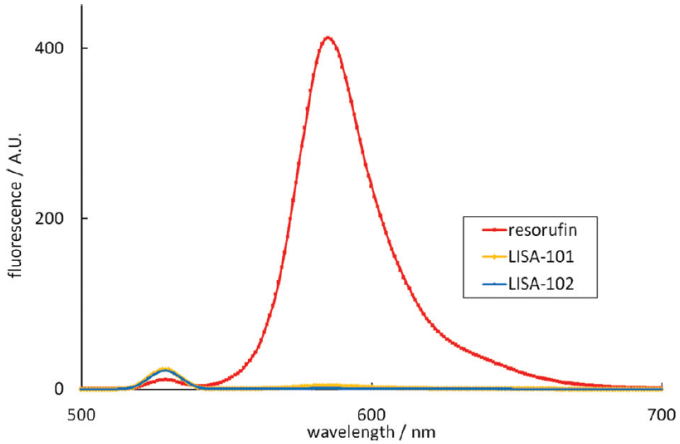
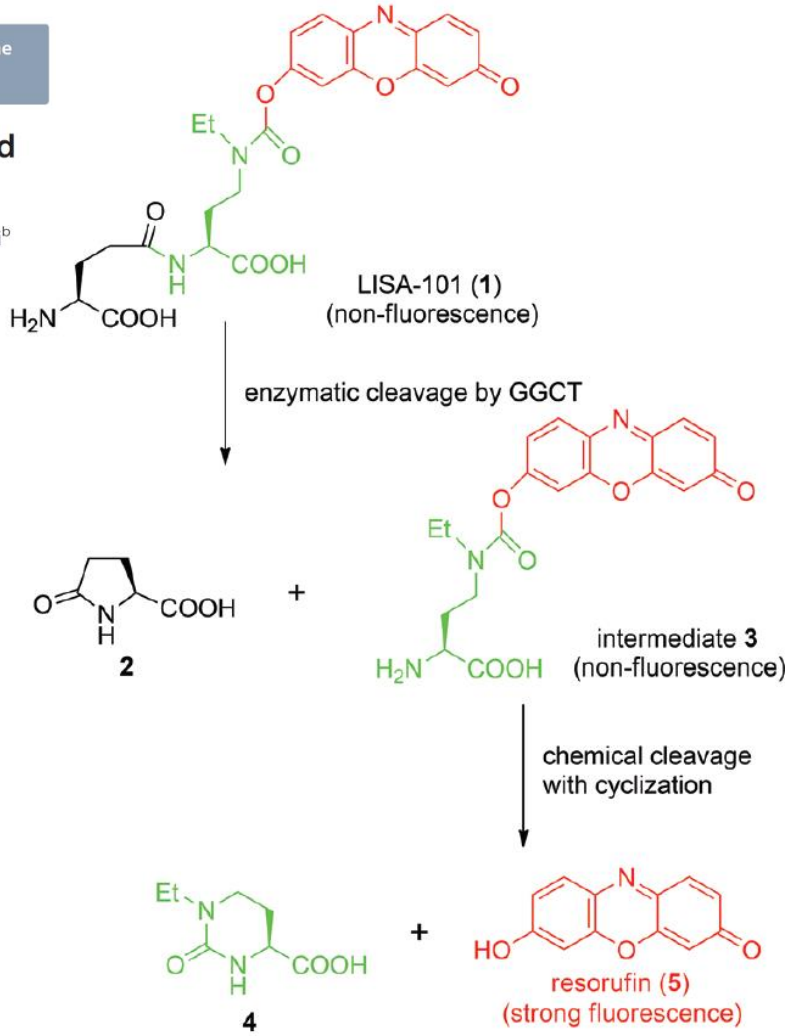


Fig. 1 Fluorescence spectra of resorufin, LISA-101 and LISA-102 (excitation at 530 nm).



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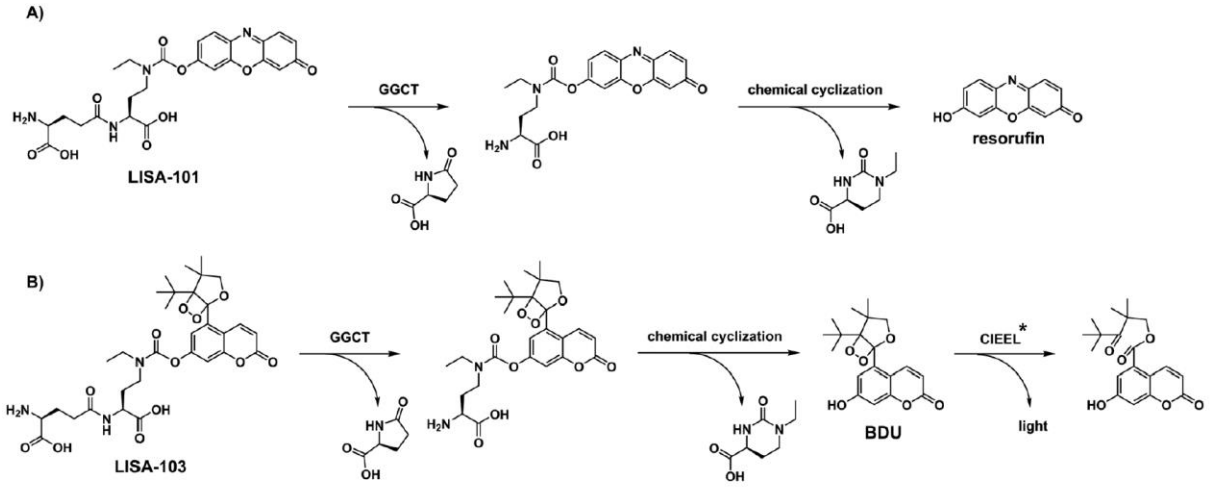
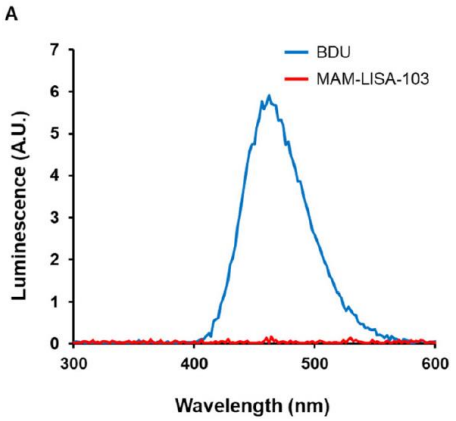
Cite this: *Org. Biomol. Chem.*, 2023, **21**, 5977

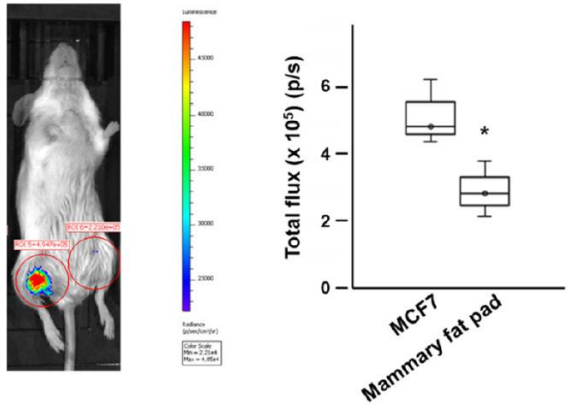
Development of an activity-based chemiluminogenic probe for γ-glutamylcyclotransferase†

Yukie Nohara,[a] Keiko Taniguchi,[b] Hiromi Ii,[c] Shun Masuda,[a] Hiroko Kawakami,[a] Masakatsu Matsumoto,[d] Yasunao Hattori,[e] Susumu Kageyama,[f] Toshiyuki Sakai,[b] Susumu Nakata*[c] and Taku Yoshiya *[a,g]



Scheme 1 Structures and mechanisms of GGCT probes: (A) the previously reported fluorogenic probe LISA-101 and (B) the newly developed chemiluminogenic probe **LISA-103**. CIEEL* = chemically initiated electron-exchange luminescence.





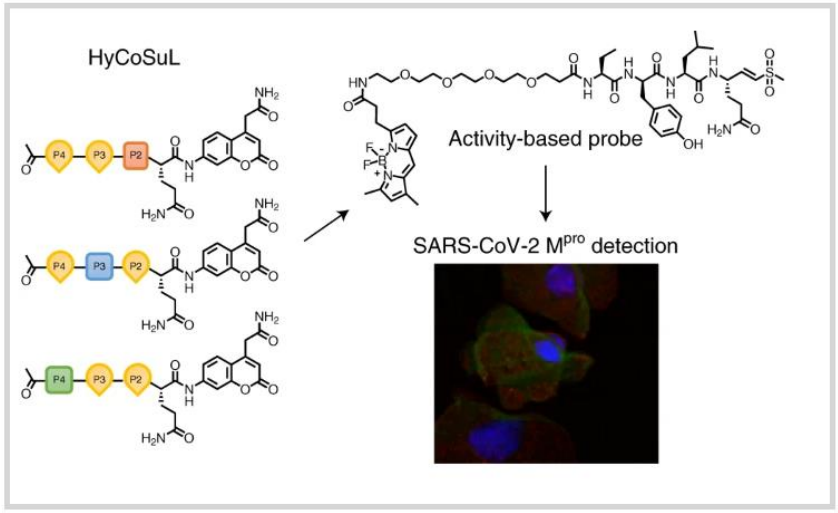
Peptide Institute against COVID-19: M^{pro} substrates and inhibitors

Article | Published: 22 October 2020

SARS-CoV-2 M^{pro} inhibitors and activity-based probes for patient-sample imaging

Wioletta Rut, Katarzyna Groborz, Linlin Zhang, Xinyuanyuan Sun, Mikolaj Zmudzinski, Bartlomiej Pawlik, Xinyu Wang, Dirk Jochmans, Johan Neyts, Wojciech Młynarski, Rolf Hilgenfeld & Marcin Drag

Nature Chemical Biology **17**, 222–228(2021) | Cite this article



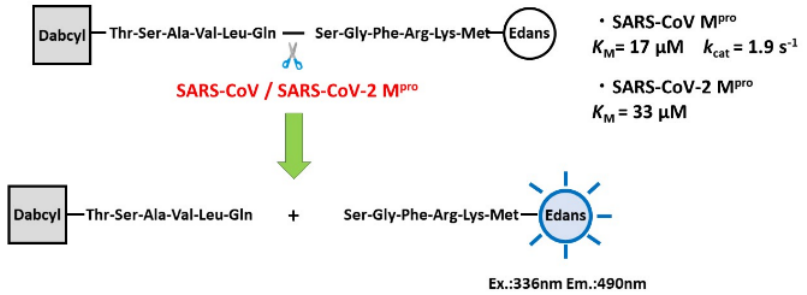


Figure 1. Method of measuring protease activity of SARS-CoV/SARS-CoV-2 M^{pro} quenching fluorogenic substrate using FRET.

Code	Product Name	Quant	Price
3249-v	Dabcyl-Lys-Thr-Ser-Ala-Val-Leu-Gln-Ser-Gly-Phe-Arg-Lys-Met-Glu(Edans)-NH_2	1 mg	50,000

JSPP

Japanese Society for Proteases in Pathophysiology
日本病態プロテアーゼ学会

News Letter

臨時号 AUG. 2020

JSPP against COVID-19

JSPP News Letter against COVID-19

CONTENTS

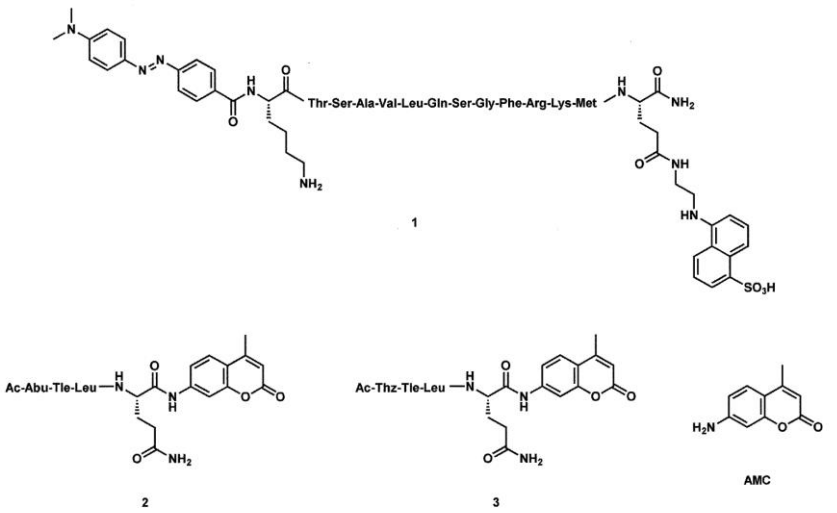


図 1. FRET 基質 1, MCA 基質 2,3 の構造

略号: FRET = fluorescence resonance energy transfer, AMC = 7-amino-4-methylcoumarin, MCA = 4-methylcoumaryl-7-amide。(ペプチドの C 末端カルボン酸と蛍光物質 AMC とが結合することで, AMC 部分の化学名が変化 (7-amino → 7-amide) し, MCA 基質となります。)

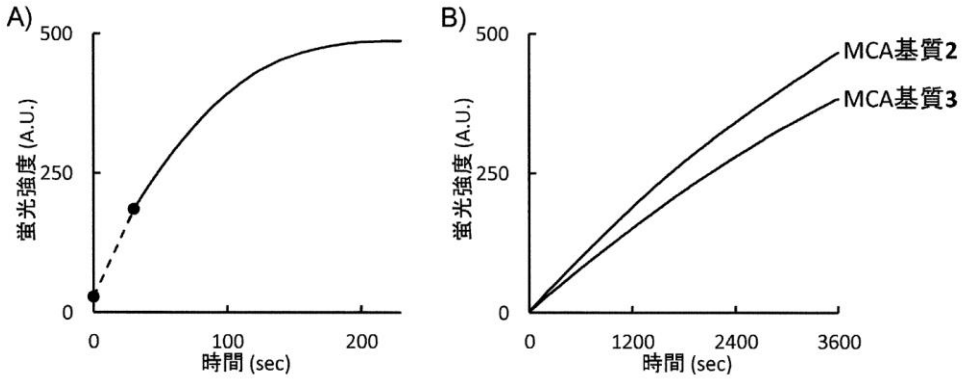
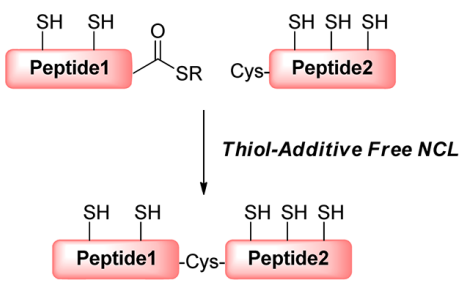


図 3. A) FRET 基質 1, B) MCA 基質 2,3 を用いた場合の蛍光の増大 (いずれも, 酵素反応の条件は図 1 と同じ。基質 10 μM。A は Ex. 336 nm/Em 490 nm, B は Ex. 380 nm/Em. 460 nm で測定。)

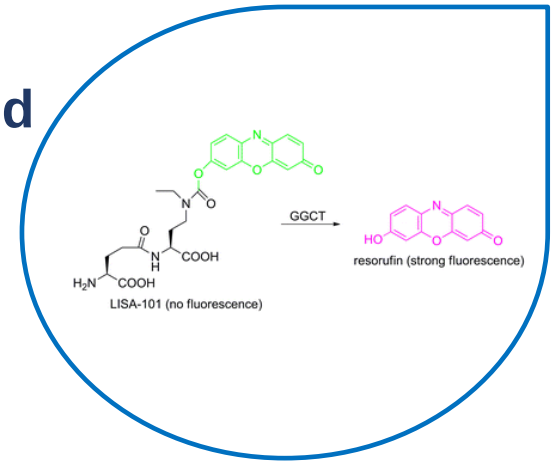
History of the cutting-edge researches

Difficult peptide synthesis

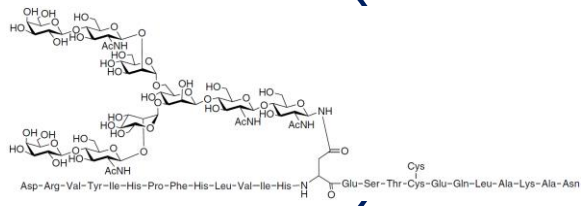


Peptide Institute

Chemical biology-oriented compounds



Glycopeptides synthesis



History of the cutting-edge researches

Difficult peptide synthesis

Peptide Institute

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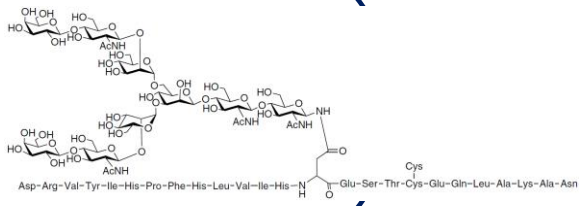
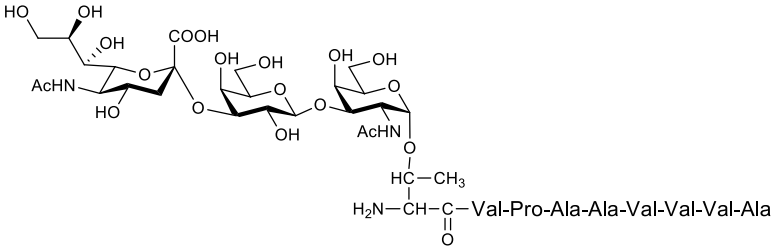
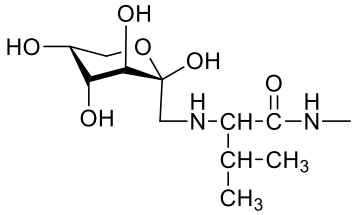
Glycopeptides synthesis



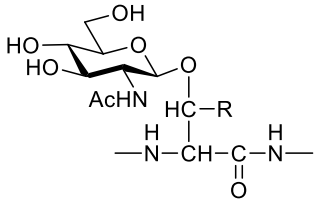
Glycopeptides synthesis



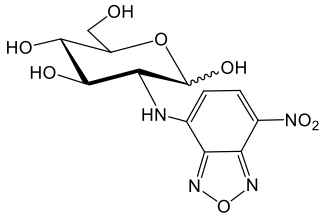
APF Sialoglycopeptide)



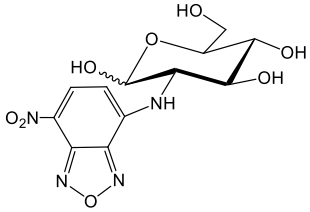
1-Deoxyfructosyl-Val-



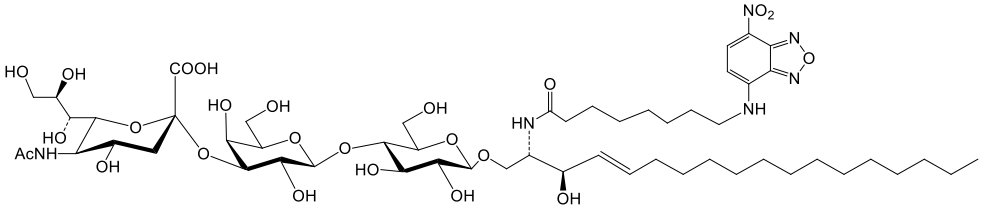
-Ser/Thr(GlcNAc)-



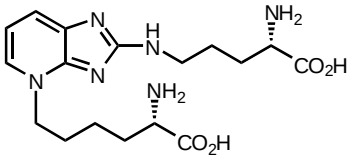
2-NBDG



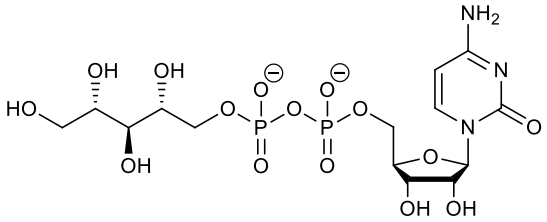
2-NBDLG



GM3 labelled by NBD

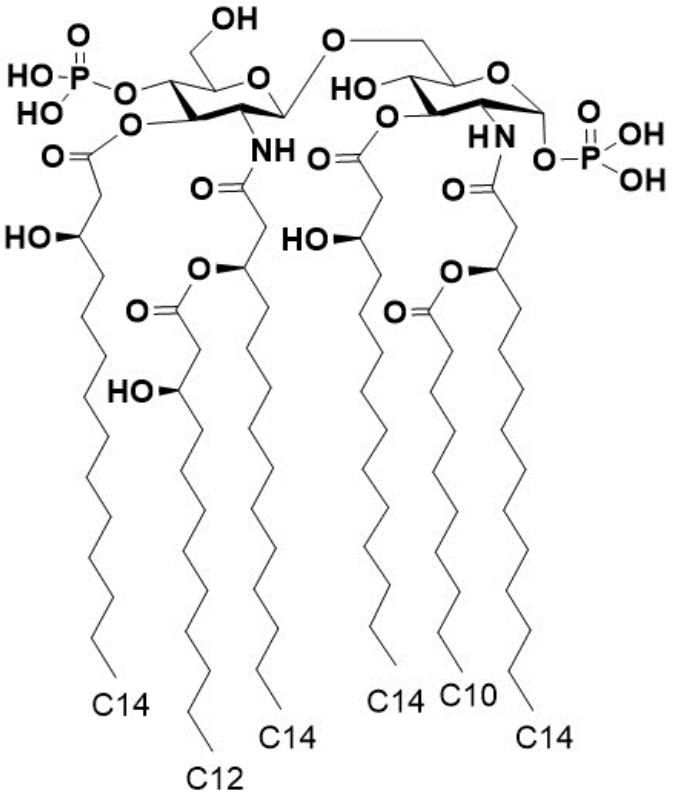


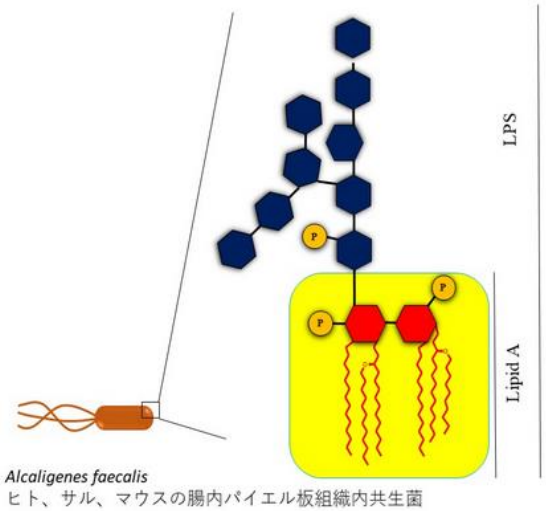
Pentosidine



CDP-ribitol (CDP-Rbo)

Chemical synthesis of Lipid A





リポ多糖(LPS)の構造

WO2018155051A1.
A.Shimoyama, Angew. Chem. Int. Ed., 60, 10023 (2021).
Y. Wang, Vaccines, 8, 395 (2020).
K. Yoshii, K. Hosomi, A. Shimoyama, Y. Wang, Microorganisms, 8, 1102 (2020).

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Validation of the relationship between coagulopathy and localization of hydroxyethyl starch on the vascular endothelium in a rat hemodilution model

Ryu Azumaguchi, Yasuyuki Tokinaga, Satoshi Kazuma✉, Motonobu Kimizuka, Kosuke Hamada, Tomoe Sato & Michiaki Yamakage

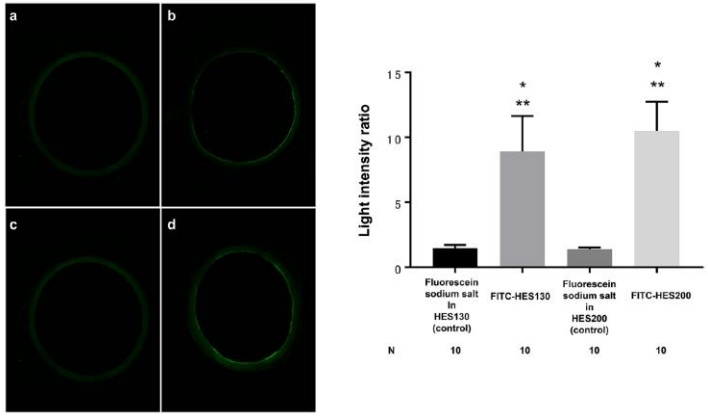
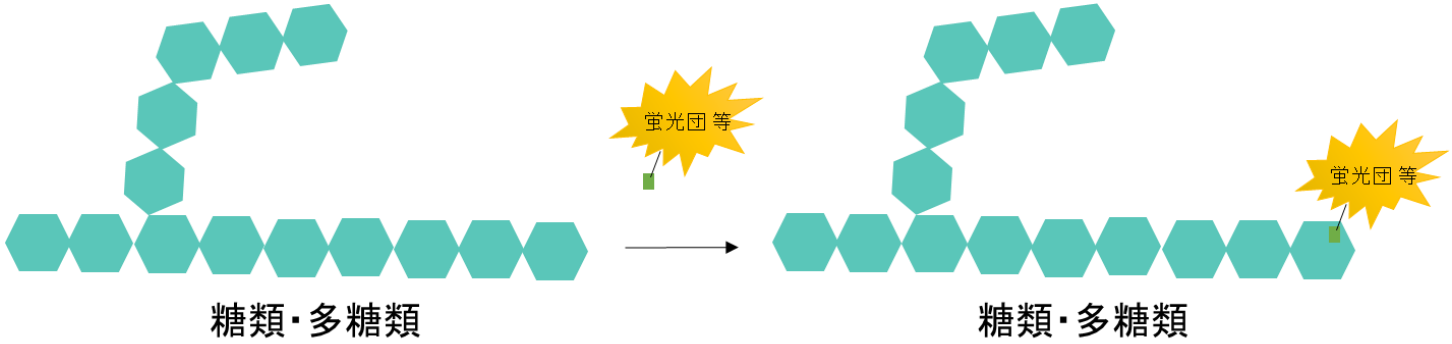


Figure 7. Left: Representative cross-sectional images of the isolated aorta after infusion of fluorescently labeled HES. (**a**) Fluorescein sodium salt in HES130 (control), (**b**) FITC-HES130, (**c**) fluorescein sodium salt in HES200 (control), (**d**) FITC-HES200. Right: Luminance intensity ratio of endothelium to outer membrane after infusion of fluorescently labeled HES in the isolated aorta. *HES130* 6% hydroxyethyl starch 130/0.4 in PS (6% Voluven), *HES200* 10% hydroxyethyl starch 200/0.5 in PS (10% Pentaspan), *FITC* fluorescein isothiocyanate. *P < 0.0001 vs fluorescein sodium salt in HES130 (control), **P < 0.0001 vs fluorescein sodium salt in HES200 (control).



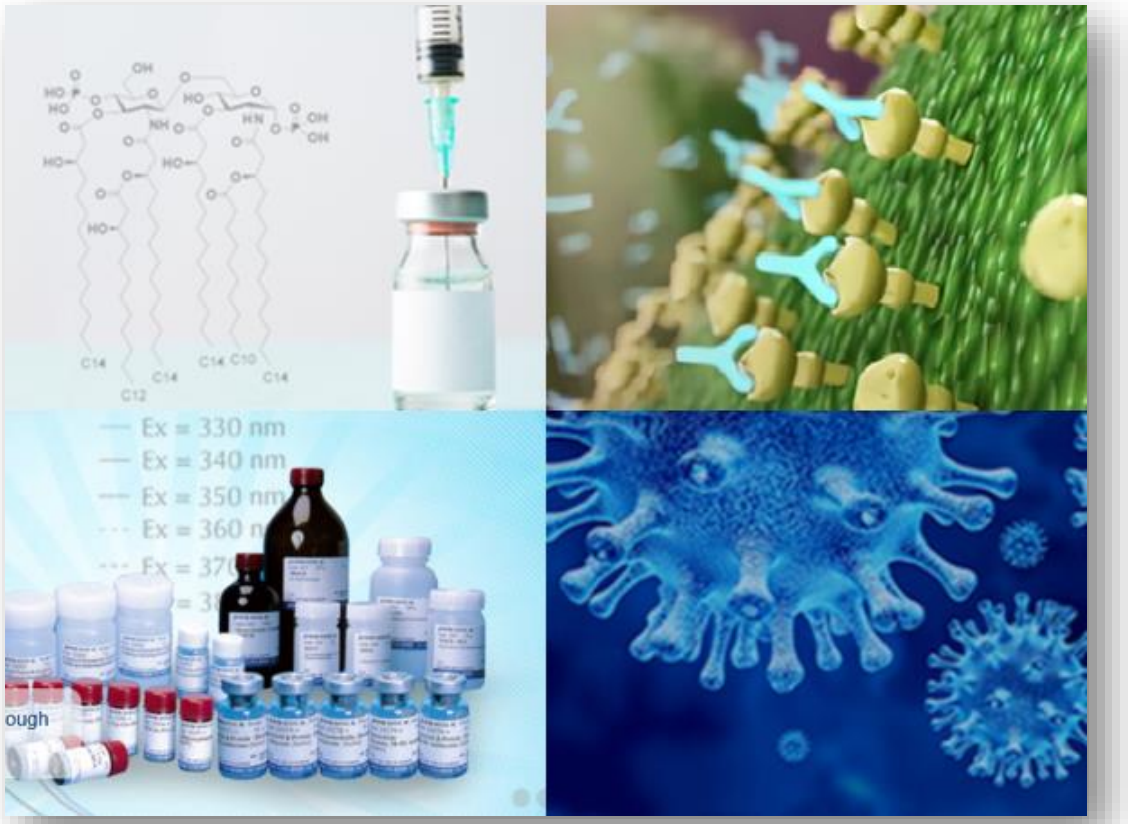
Introduction to the Peptide Institute

History of the cutting-edge researches

Promotion of our products

Peptide Institute

Promotion of our products



Amino Acids and Their Derivatives

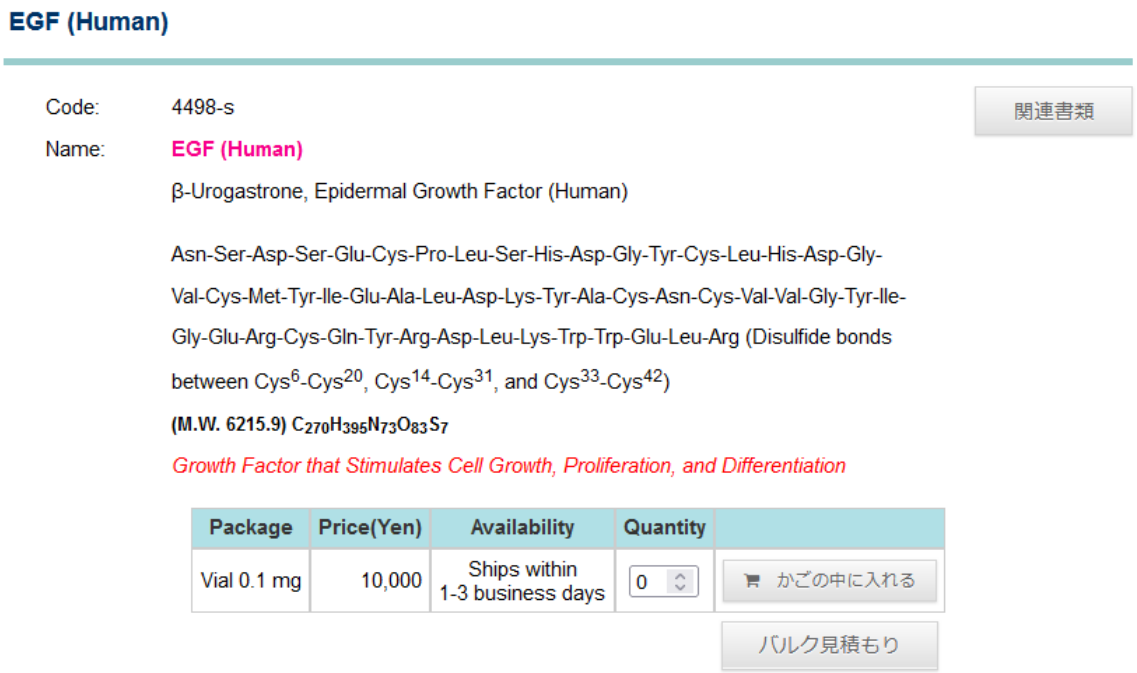
天然20種のアミノ酸に関しては，L体・D体，Fmoc保護体・Boc保護体すべてをカタログ商品にラインナップしています。

また，非天然アミノ酸に関しては，GL Biochem社の試薬を取り次ぎ販売しております。

https://www.peptide.co.jp/catalog/search_out?p_category=HGL&p_product=&p_code=&p_cas=&p_kbn=search&p_all=

Biologically Active Peptides

ペプチドは勿論，蛋白も化学合成し，カタログ商品として販売しております。受託合成も可能です。



EGF (Human)

Code: 4498-s

関連書類

Name: **EGF (Human)**

β-Urogastrone, Epidermal Growth Factor (Human)

Asn-Ser-Asp-Ser-Glu-Cys-Pro-Leu-Ser-His-Asp-Gly-Tyr-Cys-Leu-His-Asp-Gly-Val-Cys-Met-Tyr-Ile-Glu-Ala-Leu-Asp-Lys-Tyr-Ala-Cys-Asn-Cys-Val-Val-Gly-Tyr-Ile-Gly-Glu-Arg-Cys-Gln-Tyr-Arg-Asp-Leu-Lys-Trp-Trp-Glu-Leu-Arg (Disulfide bonds between Cys^{6}-Cys^{20}, Cys^{14}-Cys^{31}, and Cys^{33}-Cys^{42})

(M.W. 6215.9) $C_{270}H_{395}N_{73}O_{83}S_7$

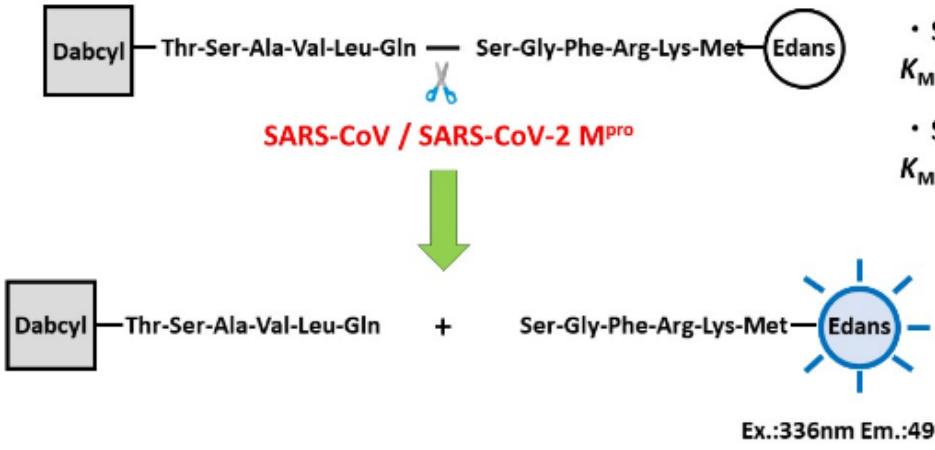
Growth Factor that Stimulates Cell Growth, Proliferation, and Differentiation

Package	Price(Yen)	Availability	Quantity	
Vial 0.1 mg	10,000	Ships within 1-3 business days	0	かごの中に入れる

バルク見積もり

https://www.peptide.co.jp/catalog/f-cat?k_code=4498-s

Peptide Institute against COVID-19
M^{pro} substrates and inhibitors



- SARS-CoV M^{pro}
  K_M= 17 μM k_{cat} = 1.9 s^{-1}
- SARS-CoV-2 M^{pro}
  K_M = 33 μM

Figure 1. Method of measuring protease activity of SARS-CoV/SARS-CoV-2 M^{pro} quenching fluorogenic substrate using FRET.

Code	Product Name	Quant	Price
3249-v	Dabcyl-Lys-Thr-Ser-Ala-Val-Leu-Gln-Ser-Gly-Phe-Arg-Lys-Met-Glu(Edans)-NH_2	1 mg	50,000

https://www.peptide.co.jp/catalog/f-cat?k_code=3249-v

Amyloid β-Protein関連

凝集性の高いアミロイドペプチド類の合成も得意としています。
勿論，水溶性を高めたイソペプチドも販売しています。

Amyloid β-Protein Fragments

Code	Compound	Package
4307-v	Amyloid β-Protein (Human, 1-40)	0.5 mg vial
4379-v	Amyloid β-Protein (Human, 1-40) [HCl Form]	0.5 mg vial
4349-v	Amyloid β-Protein (Human, 1-42)	0.5 mg vial
4370-v	Amyloid β-Protein (Human, 1-43)	0.5 mg vial
4359-v	Amyloid β-Protein (Human, 1-16)	0.5 mg vial
4481-v	Amyloid β-Protein (Human, 1-28)	0.5 mg vial
4484-v	Amyloid β-Protein (Human, 1-38)	0.5 mg vial
4492-v	Amyloid β-Protein (Human, 11-40)	0.5 mg vial
4493-v	[Pyr^{11}]-Amyloid β-Protein (Human, 11-40)	0.5 mg vial
4309-v	Amyloid β-Protein (Human, 25-35)	0.5 mg vial
4367-v	[Pyr^{3}]-Amyloid β-Protein (Human, 3-42)	0.5 mg vial
4358-v	β-Sheet Breaker Peptide iAβ5	5 mg vial
AF-683	Amyloid β-Protein (1-42, *O*-acyl isopeptide)	2 mg bulk
4518-v	APP669-711	0.5 mg vial

Amyloid β-Protein Control Peptides

Code	Compound	Package
4413-s	Amyloid β-Protein (40-1)	0.1 mg vial
4420-s	Amyloid β-Protein (42-1)	0.1 mg vial
4513-s	Amyloid β-Protein (Human, 1-40) (Scrambled)	0.1 mg vial
4514-s	Amyloid β-Protein (Human, 1-42) (Scrambled)	0.1 mg vial

Amyloid β-Protein (Human, 1-42)

Code: 4349-v

関連書類

Name: Amyloid β-Protein (Human, 1-42)

Asp-Ala-Glu-Phe-Arg-His-Asp-Ser-Gly-Tyr-Glu-Val-His-His-Gln-Lys-Leu-Val-Phe-Phe-Ala-Glu-Asp-Val-Gly-Ser-Asn-Lys-Gly-Ala-Ile-Ile-Gly-Leu-Met-Val-Gly-Gly-Val-Val-Ile-Ala

(Trifluoroacetate Form)

(M.W. 4514.0) $C_{203}H_{311}N_{55}O_{60}S$

Major Plaque Component in Alzheimer's Disease

Package	Price(Yen)	Availability	Quantity	
Vial 0.5 mg	32,000	Ships within 1-3 business days	0	かごの中に入れる

バルク見積もり

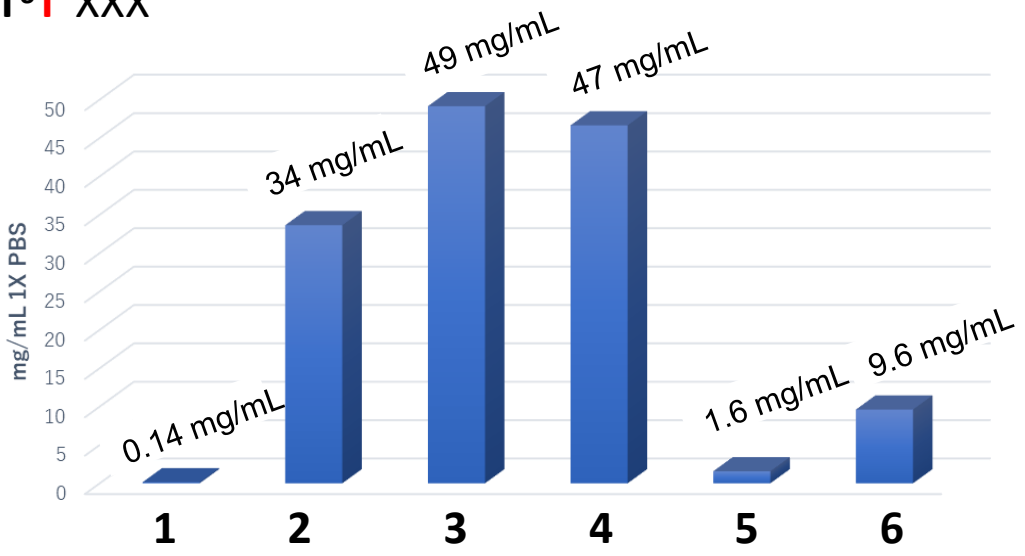
https://www.peptide.co.jp/catalog/f-cat?k_code=4349-v

Solubilization of insoluble peptides by simple glycation

水溶性を高める修飾としては糖付加も有用です

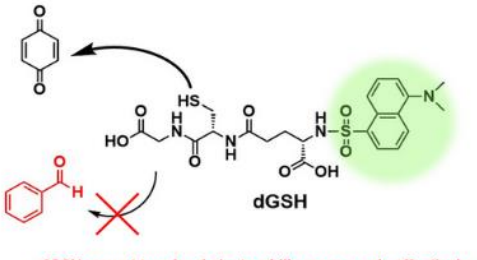
10AA peptide **1**: XXXXXT^6T^7XXX
Tri-Lys adduct **2**: XXXXXT^6T^7XXX**KKK**
Monoglycosyl **3**: XXXXXT^*T^7XXX
Monoglycosyl **4**: XXXXXT^6T^*XXX
Monoglycosyl **5**: XXXXXT^*T^7XXX
Monoglycosyl **6**: XXXXXT^6T^*XXX

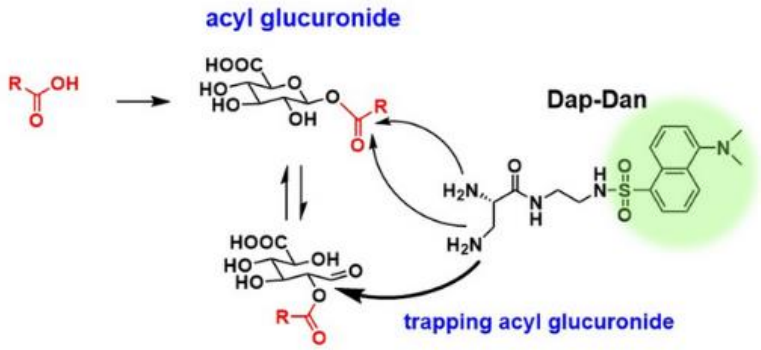
(X=I/V/A etc.)
T^* is monoglycosylated
by different Glc/Gal/Man derivative.



蛍光トラッピング剤 反応性代謝物の検出: CysGlu-Dan, Dap-Dan

Dap-Danは、従来のトラッピング剤であるdGSHが検出できなかったアルデヒド体などを効率よく検出でき、カルボキシル基を有する医薬品の代謝物であるアシルグルクロニドの検出・定量が可能です。





Code	品名	容量
3430-v	Dap-Dan	2 mg
3431-v	CysGlu-Dan	2 mg
3411	Dns-Glu(Cys-Gly)	10 mg

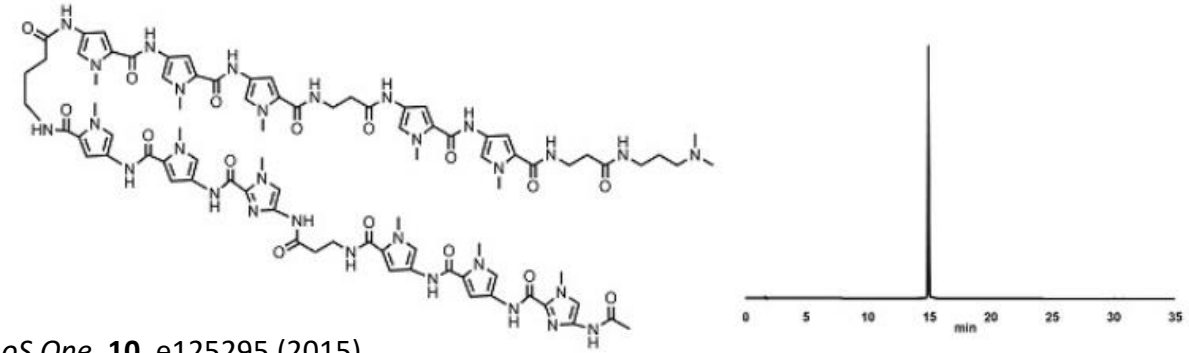
＊ バルク容量も対応可能です。お気軽にお問い合わせください。

※安定同位体標識グルタチオンも準備中です。

https://www.peptide.co.jp/new-product/6915.html

ピロールイミダゾールポリアミド

Py-Imポリアミドは、*N*-メチルピロール（Py）と*N*-メチルイミダゾール（Im）を基本構成ユニットとするポリアミドであり、PyとImの配列を組み合わせることで標的のDNA塩基配列の認識が可能になります。



J. Igarashi *et al.*, *PLoS One*, **10**, e125295 (2015)

図. GB1101の構造とHPLCチャート

その他、PNAやPIPAの蛍光色素や薬物など、様々な機能を付与した機能性ピロールイミダゾールポリアミドの合成にも対応しておりますので、ぜひ一度ご相談ください。合成も可能です。

https://www.peptide.co.jp/new-product/4333.html

Tri-GalNAc / ASGPRリガンド
(肝細胞ターゲティング試薬)

これまでにtri-GalNAcリガンドを用いた肝細胞指向性のRNAi治療薬やLYTACsも開発されています。
機能性分子との架橋部をアジドなどの官能基に変えた製品も合成可能です。

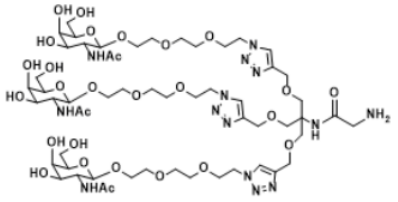


図. Tri-GalNAc-amineの構造

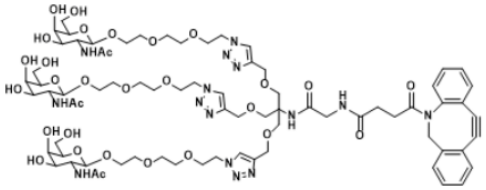


図. Tri-GalNAc-DBCOの構造

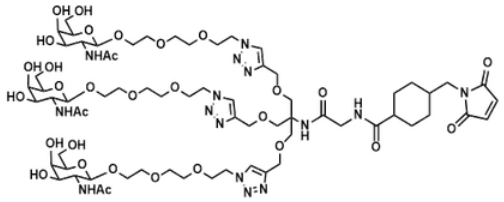
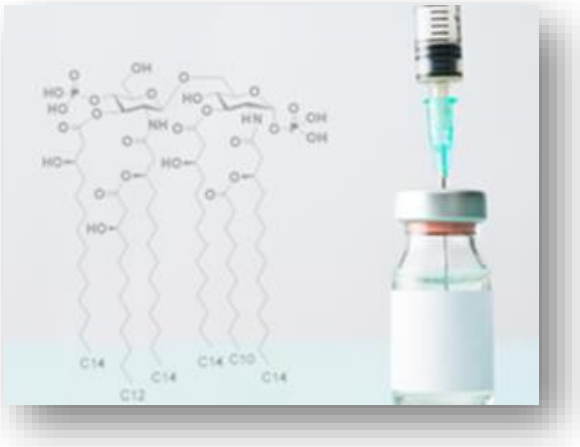


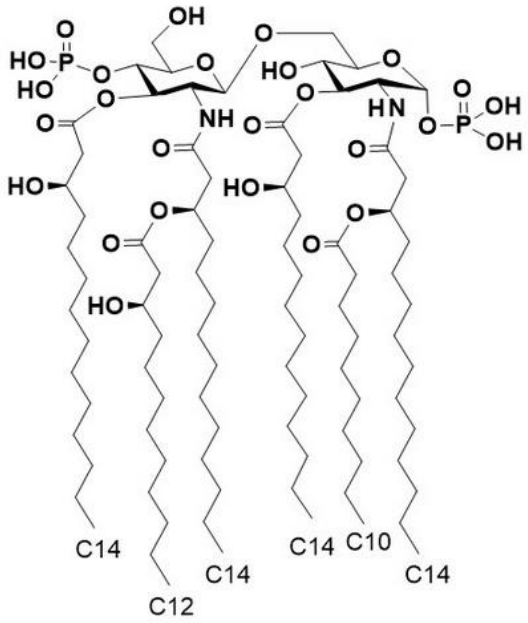
図. Tri-GalNAc-Malの構造

Code	品名	容量	価格
AP-123	Tri-GalNAc-amine	4 mg	80,000
AP-251	Tri-GalNAc-Mal	4 mg	80,000
ZY-564	Tri-GalNAc-D-Cys	4 mg	80,000
ZY-602	Tri-GalNAc-azide	4 mg	80,000
ZY-603	Tri-GalNAc-DBCO	4 mg	80,000

https://www.peptide.co.jp/new-product/4290.html

アジュバント / ワクチン研究に期待されるリピドA





Lipid A (*Alcaligenes faecalis*)の構造

Code	品名	容量
24018-s	Lipid A (*Alcaligenes faecalis*)	0.1 mg

https://www.peptide.co.jp/new-product/4369.html

BIOINTRON

リコンビナント抗体作製サービス

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安価の作業料金

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高い品質均一性

CHO-K1安定細胞株作製
高収量を保証

シングルB細胞シークエンシング
直接プライマリープラズマ細胞
からの抗体作製

VHHライブラリ構築
アルパカを再利用しない

抗体ヒューマニゼーション
アフィニティーを保証

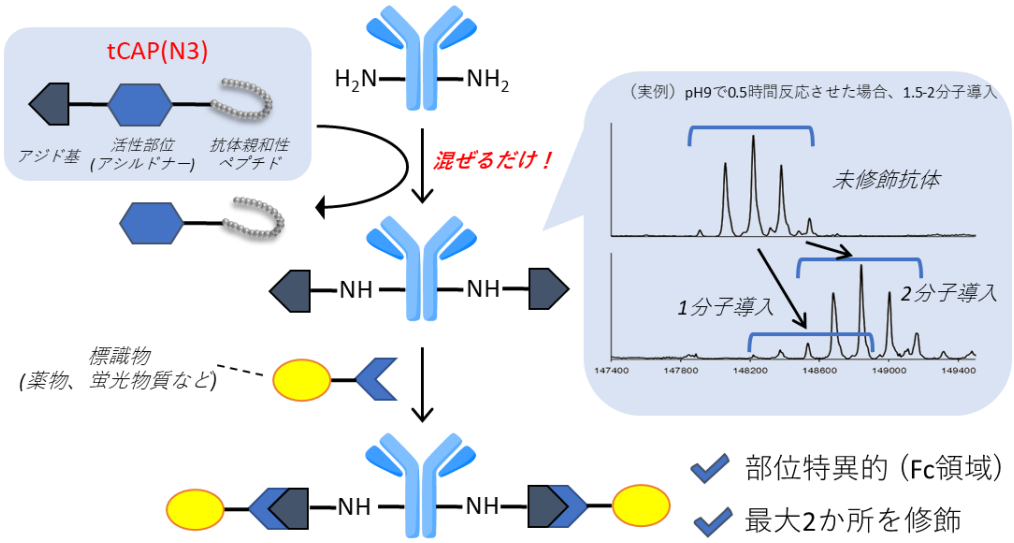
リコンビナント抗体は、哺乳類細胞での発現により産生され、再現性の高さや配列改変の容易性から、抗体研究の重要なツールになっています。BioIntron社製品は**高品質・短納期として、国内ユーザー様からも高い評価**をいただいております。
その他にも二重特異性抗体発現サービスや抗体配列最適化サービスなども提供しております。ぜひ一度弊社までお問い合わせください。

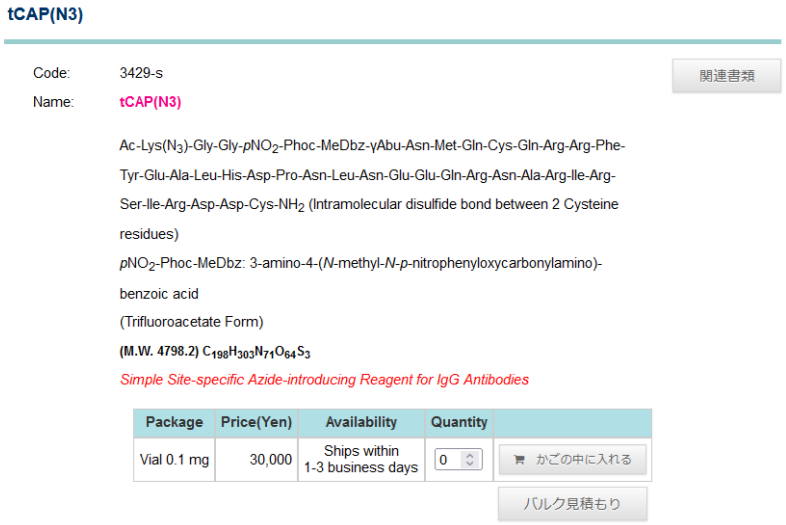
https://www.peptide.co.jp/topics/5922.html

抗体修飾試薬 tCAP(N3)

アジド基以外に薬物や蛍光物質などを導入したtCAP試薬もご提供可能です。

tCAPによる抗体修飾サービスも検討中です。ぜひご相談ください。





tCAP(N3)

Code: 3429-s

Name: tCAP(N3)

関連書類

Ac-Lys(N_3)-Gly-Gly-*p*NO_2-Phoc-MeDbz-γAbu-Asn-Met-Gln-Cys-Gln-Arg-Arg-Phe-Tyr-Glu-Ala-Leu-His-Asp-Pro-Asn-Leu-Asn-Glu-Glu-Gln-Arg-Asn-Ala-Arg-Ile-Arg-Ser-Ile-Arg-Asp-Asp-Cys-NH_2 (Intramolecular disulfide bond between 2 Cysteine residues)

pNO_2-Phoc-MeDbz: 3-amino-4-(*N*-methyl-*N*-*p*-nitrophenyloxycarbonylamino)-benzoic acid

(Trifluoroacetate Form)

(M.W. 4798.2) $C_{198}H_{303}N_{71}O_{64}S_3$

Simple Site-specific Azide-introducing Reagent for IgG Antibodies

Package	Price(Yen)	Availability	Quantity	
Vial 0.1 mg	30,000	Ships within 1-3 business days	0	かごの中に入れる

バルク見積もり

https://www.peptide.co.jp/new-product/4885.html

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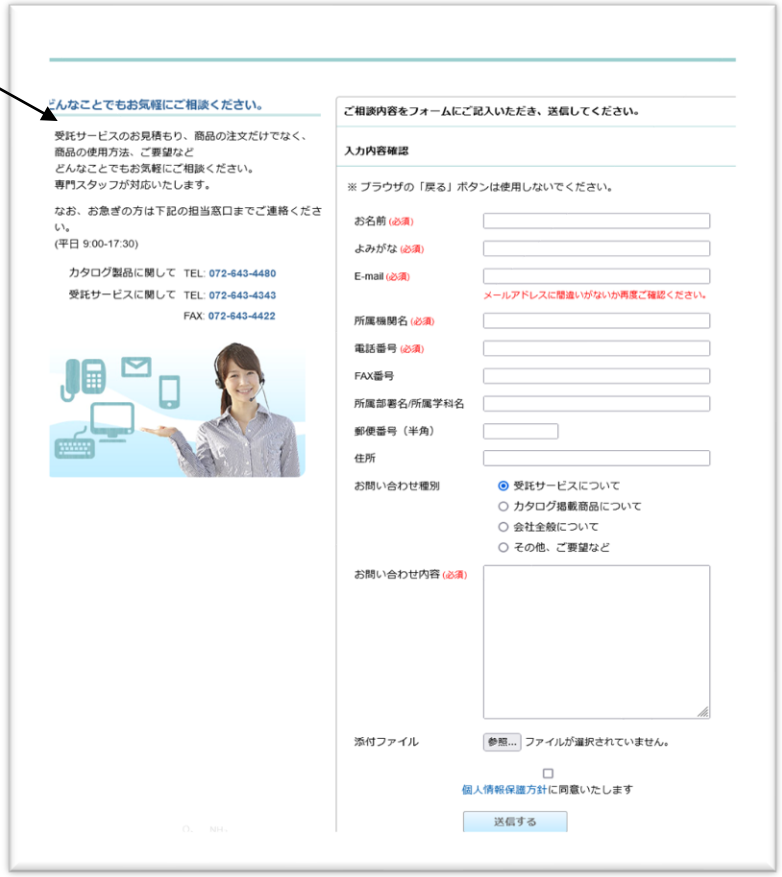

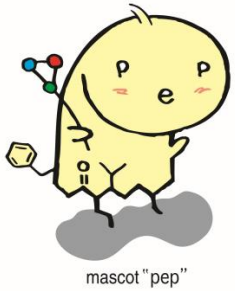

mascot "pep"
ペップちゃん

ペプチド研究所 吉矢 拓
t.yoshiya@peptide.co.jp

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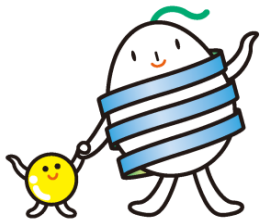

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