

本田 諒

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専門 Research Area	構造生物学, 蛋白質科学, がん分子標的薬 Structural Biology, Protein Science, Molecular-targeting therapeutics
研究課題 代表的な研究	RASを標的とした新規抗がん剤の開発 RASタンパク質はがんの約30%で活性型に変異し、がんの増殖や転移を促進する因子として機能しています。このことから、RAS阻害剤は多数のがんを制圧する革新的な抗がん剤に発展することが期待されています。本研究室では「細胞膜透過性タンパク質」というユニークな分子を多数合成することで、この中からRAS阻害剤を見出すことを試みています。
Main Research Projects	Development of RAS inhibitors and new anti-cancer agents Activating mutations of RAS are found in approximately 30% of all human cancers. Established role of the active RAS in tumor survival, maintenance, and development have promoted intensive efforts to develop RAS inhibitors worldwide. We are developing new RAS inhibitors based on an original library of cell-permeable proteins.
研究業績 (過去5年)	<ol style="list-style-type: none">Kento Wakayam, Shintaro Kimura, Yui Kobatake, Hiroaki Kamishina, Naohito Nishii, Satoshi Takashima, Ryo Honda, and *Yuji O. Kamatari: Molecular Mechanisms of Aggregation of Canine SOD1 E40K Amyloidogenic Mutant Protein, <i>Molecules</i> 28, no. 1 (2022): 156. (IF:4.93, CS:5.9) 査読ありTatsushi Nakayama, Ryo Honda, Kazuo Kuwata, Shigeyuki Usui, Bunji Uno: Electrochemical and Mechanistic Study of Reactivities of α-, β-, γ-, and δ-Tocopherol toward Electrogenerated Superoxide in N, N-Dimethylformamide through Proton-Coupled Electron Transfer. <i>Antioxidants</i>. 11(1), 9, 2022 (IF: 6.31, CS:4.5) 査読ありKazuki Heishima, Nobuhiko Sugito, Tomoyoshi Soga, Masashi Nishikawa, Yuko Ito, Ryo Honda, Yuki Kuranaga, Hiroki Sakai, Ryo Ito, Takayuki Nakagawa, Hiroshi Ueda, Yukihiko Akao: Petasin potently inhibits mitochondrial complex I-based metabolism that supports tumor growth and metastasis. <i>The Journal of clinical investigation</i>. 131(17), 2021 (IF:14.81, CS:17.7) 査読ありTatsushi Nakayama, Ryo Honda: Electrochemical and Mechanistic Study of Oxidative Degradation of Favipiravir by Electrogenerated Superoxide through Proton-Coupled Electron Transfer. <i>ACS omega</i>. 6(33), 21730-21740, 2021 (IF:3.51, CS:3.9) 査読ありTatsushi Nakayama, Ryo Honda: Electrochemical and Mechanistic Study of Superoxide Elimination by Mesalazine through Proton-Coupled Electron Transfer. <i>Pharmaceuticals</i>. 14(2), 120, 2021 (IF:5.86, CS:4.6) 査読ありMasatoshi Inden, Ayaka Takagi, Hazuki Kitai, Taisei Ito, Hisaka Kurita, Ryo Honda, Yuji O Kamatari, Sora Nozaki, Xiaopeng Wen, Masanori Hijioka, Yoshihisa Kitamura, Isao Hozumi. (2021). Kaempferol Has Potent Protective and Antifibrillogenic Effects for α-Synuclein Neurotoxicity In Vitro. <i>International Journal of Molecular Sciences</i>. 22(21), 11484, 2021 (IF:5.92, CS:6.0) 査読ありTeiko K Nomura, Kazuki Heishima, Nobuhiko Sugito, Ryota Sugawara, Hiroshi Ueda, Akao Yukihiko, and *Ryo Honda: Specific inhibition of oncogenic RAS using cell-permeable RAS-binding domains, <i>Cell Chemical Biology</i>, 28(11) 1581-1589.e, 2021 (IF:7.74, CS:12.09) 査読ありSatoshi Yamashita, Yuji O. Kamatari, Ryo Honda, Ayumi Niwa, Hiroyuki Tomiata, Akira Hara, and *Kazuo Kuwata: Monomeric α-synuclein (αS) inhibits amyloidogenesis of human prion protein (hPrP) by forming a stable αS-hPrP hetero-dimer, <i>Prion</i> 15(1), 37-43, 2021 (IF:1.95, CS:3.0) 査読あり*Tatsushi Nakayama, and Ryo Honda: Electrochemical and Mechanistic

	<p>Study of Superoxide Elimination by Mesalazine through Proton-Coupled Electron Transfer, <i>Pharmaceuticals</i>, 4(2), 120, 2021 (IF:4.29, CS:5.4) 査読あり</p> <p>10. Shintaro Kimura, Yuji O. Kamatari, Yukina Kuwahara, Hideaki Hara, Osamu Yamato, Sadatoshi Maeda, Hiroaki Kamishina, and *Ryo Honda: Canine SOD1 harboring E40K or T18S mutations promotes protein aggregation without reducing the global structural stability, <i>PeerJ</i>, 8, e9515, 2020 (IF: 2.35, CS:3.5) 査読あり</p> <p>11. Yamashita Satoshi, Ryo Honda, Mayuko Fukuoka, Tsutomu Kimura, Junji Hosokawa-Muto, and Kazuo Kuwata: Discovery of a multipotent chaperone, 1-(2, 6-Difluorobenzylamino)-3-(1, 2, 3, 4-tetrahydrocarbazol-9-yl)-propan-2-ol with the inhibitory effects on the proliferation of prion, cancer as well as influenza virus, <i>Prion</i>. 14, no. 1: 42-46, (2020). (IF:1.60, CS:2.60) 査読あり</p> <p>12. Shirasaka Maki, Kazuo Kuwata, and *Ryo Honda: α-Synuclein chaperone suppresses nucleation and amyloidogenesis of prion protein, <i>Biochemical and Biophysical Research Communications</i>. 521 (1), 259-264, (2020). (IF:2.71, CS:2.69) 査読あり</p> <p>13. Tsujino Takuya, Nobuhiko Sugito, Kohei Taniguchi, Ryo Honda, Kazumasa Komura, Yuki Yoshikawa, Tomoaki Takai, Kazuki Heishima, Teruo Inamoto, Haruhito Azuma, *Yukihiro Akao: MicroRNA-143/Musashi-2/KRAS cascade contributes positively to carcinogenesis in human bladder cancer, <i>Cancer science</i>. 110 (7), 2189-2199, (2019). (IF:4.75, CS:4.48) 査読あり</p> <p>14. Sugawara Ryota, Hiroshi Ueda, and Ryo Honda: Structural and functional characterization of fast-cycling RhoF GTPase." <i>Biochemical and biophysical research communications</i>. 513 (2), 522-527, (2019). (IF:2.56, CS:2.62) 査読あり</p> <p>15. Kakuda Kyosuke, Ayumi Niwa, Ryo Honda, Kei-ichi Yamaguchi, Hiroyuki Tomita, Md Nojebuzzaman, Akira Hara, Yuji Goto, Masatake Osawa, Kazuo Kuwata.: A DISC1 point mutation promotes oligomerization and impairs information processing in a mouse model of schizophrenia, <i>The Journal of Biochemistry</i>. 165 (4), 369-378, (2019). (IF:2.35, CS:2.31) 査読あり</p> <p>16. Kakuda Kyosuke, Kei-ichi Yamaguchi, Kazuo Kuwata, Ryo Honda: A valine-to-lysine substitution at position 210 induces structural conversion of prion protein into a β-sheet rich oligomer, <i>Biochemical and biophysical research communications</i>. 506 (1), 81-86, (2018). (IF:2.47, CS:2.62) 査読あり</p> <p>17. Ryo Honda, Kei-ichi Yamaguchi, Abdelazim Elsayed Elhelaly, Mitsuhiro Fuji, Kazuo Kuwata: Poly-L-histidine inhibits prion propagation in a prion-infected cell line, <i>Prion</i>. 12 (3-4), 226-233, (2018). (IF:2.01, CS:2.11) 査読あり</p> <p>18. Ryo Honda and Kazuo Kuwata: Evidence for a central role of PrP Helix 2 in the nucleation of amyloid fibrils, <i>The FASEB Journal</i>. 32 (7), 3641-3652, (2018). (IF:5.50, CS:4.53) 査読あり</p> <p>19. Ryo Honda: Amyloid-β peptide induces prion protein amyloid formation: Evidence for its widespread amyloidogenic effect, <i>Angewandte Chemie</i> 130 (21), 6194-6197, (2018). (IF:11.99, CS:11.31) 査読あり</p> <p>20. Kei-ichi Yamaguchi, Ryo P Honda, Abdelazim Elsayed Elhelaly, Kazuo Kuwata: Acceleration of nucleation of prion protein during continuous ultrasonication, <i>The Journal of Biochemistry</i>. 163 (6), 503-513, (2018). (IF:2.35, CS:2.31) 査読あり</p> <p>21. Ryo Honda: Role of the Disulfide Bond in Prion Protein Amyloid Formation: A Thermodynamic and Kinetic Analysis. <i>Biophysical Journal</i>. 114(4):885-892., DOI:10.1016/j.bpj, (2018). (IF:3.66) 査読あり</p>
<p>外部資金 (過去5年)</p>	<ol style="list-style-type: none"> 令和4年度～令和6年度 AMED 革新的がん医療実用化研究事業「Non-G12C 変異型 RAS を標的とするキメラ型タンパク質の開発」 令和4年～令和5年度文部科学省 (若手研究) 「がん遺伝子産物 RAS を阻害する細胞膜透過性タンパク質の開発」研究代表者 令和2年～令和3年度中部先端医療開発円環コンソーシアム「Ras を標的とした細胞膜透過性タンパク質の開発」研究代表者 令和元年～令和3年度文部科学省 (若手研究) 「変異型 Ras に高親和性かつ特異的に結合するタンパク質を用いた新規抗がん剤の開発」研究代表者
<p>特許</p>	<p>PCT/JP2021/028880「人工タンパク質、RAS阻害剤及び抗がん剤」、発明者：本田諒、赤尾幸博、出願者：国立大学法人東海国立大学機構</p>

<p>報道 (過去5年)</p>	<p>2021年12月16日「がん増殖タンパク阻害で抗がん剤 岐阜大准教授ら開発」中日新聞 2021年11月29日「岐阜大、シンガポール VB に RAS 阻害剤のライセンス供与」日刊工業新聞</p>
<p>略歴</p>	<p>平成27年3月 岐阜大学医学部医学科 卒業 平成28年～平成29年 日本学術振興会特別研究員・DC1 平成29年～令和3年 岐阜大学大学院連合創薬医療情報研究科・助教 平成30年 博士（医学）（岐阜大学） 令和3年～現在 岐阜大学大学院連合創薬医療情報研究科・准教授 令和5年1月 岐阜大学高等研究院 One Medicine トランスレショナルリサーチセンター (COMIT)・准教授</p>