2021/06/08
Life Science BizMeet

Alchemedicine

Rapid Drug Discovery with proprietary medicinal chemistry

Alchemedicine, Inc.
Keigo TANAKA
'Alchemist of medicine'

Corporate Overview

Alchemedicine

➢ Corporate Information

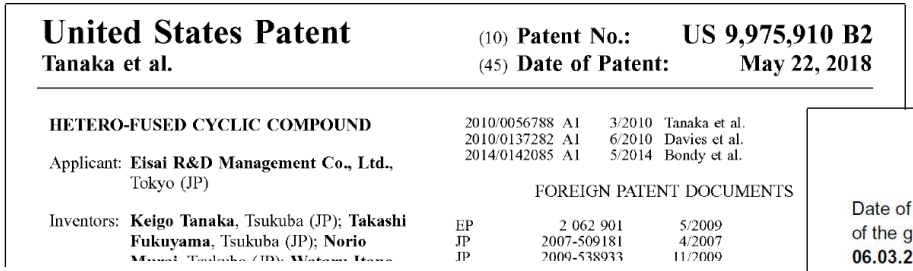
- Founded in April 2019
- Located in Tsukuba, Ibaraki, Japan
- Spin-off biotech from Eisai
- Closed Series A in February 2021: Total 9.5M USD

➢ R&D

- Core technology: Proprietary medicinal chemistry enabling rapid discovery of drug candidates
- Diverse drug discovery programs without disease foci
- Completed lead optimization for internal four programs in two years and started external collaboration under MTA

Core technology ‘HiSAP®’

- **Built a foundation of HiSAP through the discovery of novel organic reactions/reagents since 2003**
- **Combination of above exclusive technologies and application know-how is the key for rapid discovery of drug candidates from existing drugs**



United States Patent
Tanaka et al.

(10) Patent No.: US 9,975,910 B2
(45) Date of Patent: May 22, 2018

HETERO-FUSED CYCLIC COMPOUND

Applicant: Eisai R&D Management Co., Ltd., Tokyo (JP)

Inventors: Keigo Tanaka, Tsukuba (JP); Takashi Fukuyama, Tsukuba (JP); Norio

2010/0056788 A1 3/2010 Tanaka et al.
2010/0137282 A1 6/2010 Davies et al.
2014/0142085 A1 5/2014 Bondy et al.

FOREIGN PATENT DOCUMENTS

EP 2 062 901 5/2009
JP 2007-509181 4/2007
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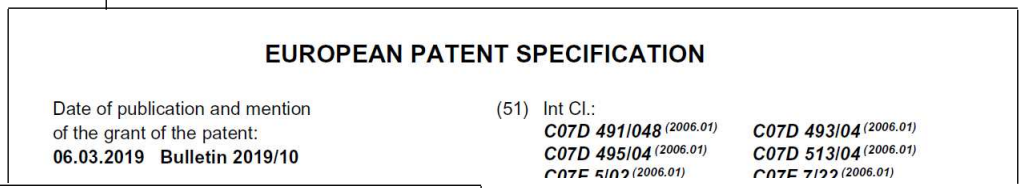
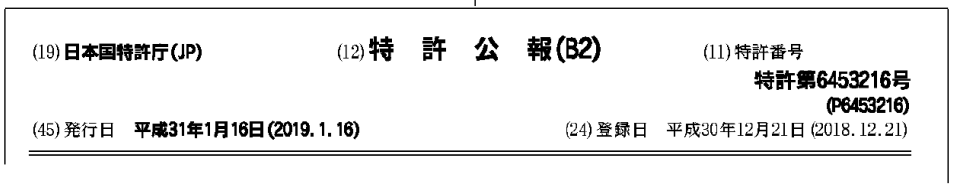


EUROPEAN PATENT SPECIFICATION

Date of publication and mention of the grant of the patent:
06.03.2019 Bulletin 2019/10

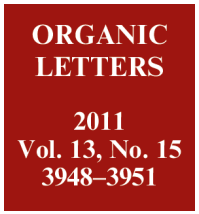
(51) Int Cl.:
C07D 491/048 (2006.01) C07D 493/04 (2006.01)
C07D 495/04 (2006.01) C07D 513/04 (2006.01)



(19) 日本国特許庁(JP)
(12) 特 許 公 報(B2)
(11) 特許番号
特許第6453216号
(P6453216)

(45) 発行日 平成31年1月16日(2019.1.16)
(24) 登録日 平成30年12月21日(2018.12.21)

COMMUNICATIONS CHEMISTRY (2018)1:29



ORGANIC LETTERS
2011
Vol. 13, No. 15
3948–3951

ploying a large excess of the organoboron reagent.[7a] Tanaka extended the scope of the reaction to an intramolecular Suzuki–Miyaura cross-coupling with sodium al-

Founder TANAKA: Introduced as one of the major contributors who extended the scope of Nobel-prize-awarded Suzuki-Miyaura cross-coupling reaction

Technology POC before starting our business

Alchemedicine

Known 9 compounds

Success rate*: 78%

HiSAP®

Patentable drug candidate

* >10-fold improvement of drug profiles with similar or better pharmacological activity.

Example: approved drug A

- Package insert 'Strong CYP3A4 inhibitors'
- Drug interactions with CYP3A4 substrates in human
- Low solubility leading to non-linear PK profile

	Approved drug A	Optimized with HiSAP®
CYP3A4 irreversible inhibition	Yes (<1μM)	No (>10μM)
Solubility (μM, pH=7.4)	1	6
inhibition of target receptor at 100 nM (%)	50	60

Technology POC after starting our business

Alchemedicine

Known 14 compounds

Success rate*: 71%

HiSAP®

Patentable drug candidate

* >10-fold improvement of drug profiles with similar or better pharmacological activity.

Program	Key issue of known compounds			
A	Efficacy DMPK	Pharmacological activity	100%	2400%
B		BBB penetration	0.05	1.1
C		Cell permeability	0.03	2.8
D		Solubility in water	1	>100
E		Drug-drug interaction	0.31	12
F	Side effect	Atrial fibrillation	4.3	>100
G		Neutropenia	92	<1
H		Liver injury	54	1
I		Target selectivity	72	1500
J		Target selectivity	4	>67

Current status of internal program

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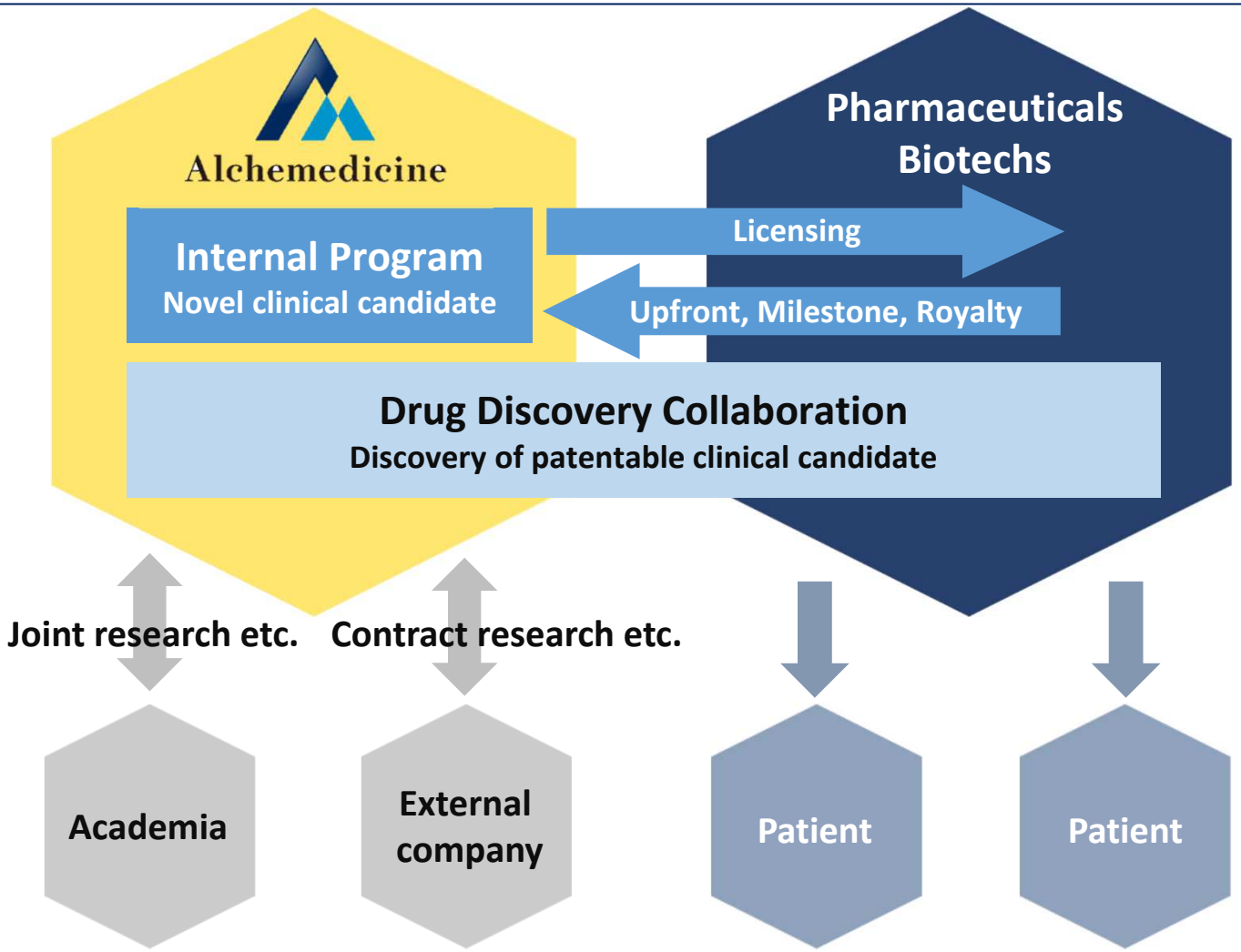
MTA-ready for four compounds in two years

Program	Disease area	Exploratory			Preclinical	Clinical
		Differentiated Lead Generation	Lead Optimization	Major pharmacology and prelim tox	Preclinical studies	Clinical studies
1	Metabolism					
2	Eye					
3	Cardiovascular					
4	Cancer					
5	Cardiovascular					
6	CNS					
7	Metabolism					
8	Immunology					
9	Bone					
10	Metabolism					
11	CNS					
12	gastrointestinal					

Started collaboration with pharma companies under MTA

Business model

- Out-license of novel clinical candidate from internal program
- Collaboration aiming for the discovery of novel clinical candidate



Summary

Alchemedicine

We welcome collaboration:

- **License of internal drug candidates**
  - MTA-ready four compounds
  - Disease area: metabolism, eye, cardiovascular, cancer
- **Joint program aiming for the rapid discovery of drug candidates from existing compounds**
  - Low efficacy, safety issues, etc.
  - Estimated timeline for medicinal chemistry
    - Five months for the discovery of differentiated and patentable lead compound