



Development of a cell quantification platform for pharmacokinetic analysis of cell therapy products

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Better Health, Brighter Future

36th JSSX annual meeting COI disclosure information

Author: Syunsuke Yamamoto

I have the following financial relationships to disclose for our presentation contents.

- Employee : Syunsuke Yamamoto
(Takeda Pharmaceutical company)

About me



Personal profile :

March 2009 M.S. in Pharmaceutical Sciences, Nagoya City University (Prof. Yuasa/Prof. Inoue)
April 2009– Research Scientist, Nagoya City University (Prof. Yuasa)
April 2009 Research Scientist, Takeda Pharmaceutical Company Limited
May 2017 Principal Scientist, Takeda Pharmaceutical Company Limited
April 2020 Associate Scientific Fellow, Takeda Pharmaceutical Company Limited
April 2021– Associate Director, Takeda Pharmaceutical Company Limited

Research interest :

Transporter, intestinal absorption, Nasal/Dermal absorption, PET tracer, Nucleic acid, Cell/Gene therapy

Awards :

The best poster award in JSSX 2017 for human pharmacokinetic prediction after dermal administration
The best poster award in JSSX 2019 for cell quantification in chimeric antigen receptor T cell therapy
The JSSX Award for Young Scientists with Dedication to Drug Discovery in JSSX 2021



How to contribute to drug developments in cell therapies?



Cellular quantification ? ? 



PK/PD ? ?
Human prediction ? ?



Cellular quantification



Alu-qPCR

Contents lists available at ScienceDirect
JSRM
Regenerative Therapy
journal homepage: <http://www.elsevier.com/locate/jrst>

Original Article
Development of a bioanalytical method for circulating human T cells in animals using *Arthrobacter luteus*-based quantitative polymerase chain reaction and its application in preclinical biodistribution studies
Hisao Shimizu^a, Yoji Kuze, Tomoaki Higuchi, Shin-ichi Matsumoto, Syunsuke Yamamoto, Akihiko Goto, Yuo Moriya, Hideki Hirabayashi
Drug Metabolism and Pharmacokinetics Research Laboratory, Research, Takeda Pharmaceutical Company Limited, 20-1 Moriya Higashi 2-chome, Fujisawa, Kanagawa, Japan

Contents lists available at ScienceDirect
JSRM
Regenerative Therapy
journal homepage: <http://www.elsevier.com/locate/jrst>

Review
Biodistribution studies for cell therapy products: Current status and issues
Yoshitenu Kamiyama^{a,*}, Yoichi Naritomi^a, Yuo Moriya^b, Syunsuke Yamamoto^b, Tsukasa Kitahashi^c, Toshihiko Marekawa^c, Masahiro Yahata^d, Takeshi Hamada^e, Asako Uchiyama^f, Akari Noumura^g, Yoshiyuki Koga^h, Tomoaki Higuchiⁱ, Masahiko Ito^j, Hiroyuki Komatsu^k, Sosuke Miyoshi^l, Sadaaki Kimura^m, Nobuhiro Umedaⁿ, Eriko Fujita^o, Naohiro Tanaka^p, Taka Sugita^q, Satoru Takayama^r, Akihiko Kuregi^o, Satoshi Yasuda^s, Yoji Sato^o

LINE1-qPCR

Contents lists available at ScienceDirect
ELSEVIER
Drug Metabolism and Pharmacokinetics
journal homepage: <http://www.journals.elsevier.com/drug-metabolism-and-pharmacokinetics>

Regular Paper
Highly specific, quantitative polymerase chain reaction probe for the quantification of human cells in cynomolgus monkeys
Syunsuke Yamamoto¹, Ning Ding^{2,*}, Shin-ichi Matsumoto, Hideki Hirabayashi
Drug Metabolism and Pharmacokinetics Research Laboratory, Research, Takeda Pharmaceutical Company Limited, 20-1 Moriya Higashi 2-chome, Fujisawa, Kanagawa, Japan

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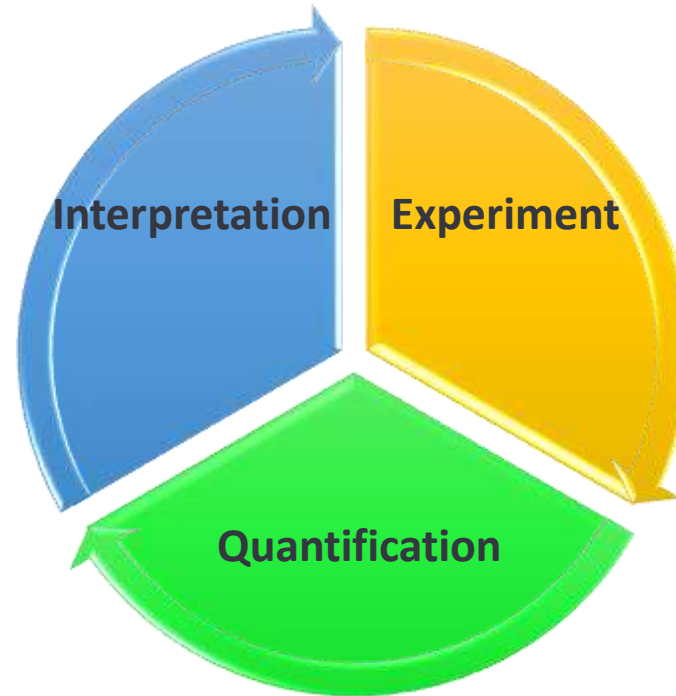
Regular Article
Quantitative application of flow cytometry for the analysis of circulating human T cells: A preclinical pharmacokinetic study
Syunsuke Yamamoto¹, Shin-ichi Matsumoto, Hisao Shimizu, Hideki Hirabayashi
Drug Metabolism and Pharmacokinetics Research Laboratory, Research, Takeda Pharmaceutical Company Limited, 20-1 Moriya Higashi 2-chome, Fujisawa, Kanagawa, Japan

CAR-qPCR

scientific reports

OPEN Quantitative PCR methodology with a volume-based unit for the sophisticated cellular kinetic evaluation of chimeric antigen receptor T cells
Syunsuke Yamamoto¹, Shin-ichi Matsumoto, Akihiko Goto, Miyuki Ugajin, Miyu Nakayama, Yuo Moriya & Hideki Hirabayashi

Take-home message



- DMPK research in cell therapy program is NOT specific.
- It is important to circulate the cycle of “experiment → quantification → interpretation”, efficiently.

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Alu-qPCR

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- 守屋優
- 平林英樹

LINE1-qPCR

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Thank you!!



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