EXACTCURE

Your Digital Twin for a Personalized Medication

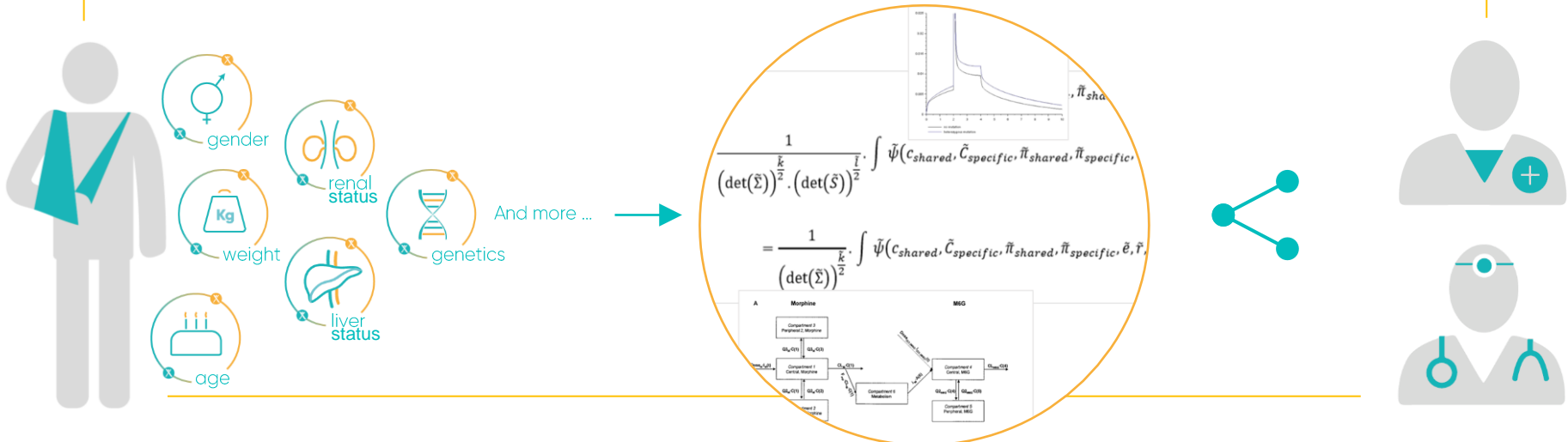CRANE

Fabien Astic, Co-founder, Business Development
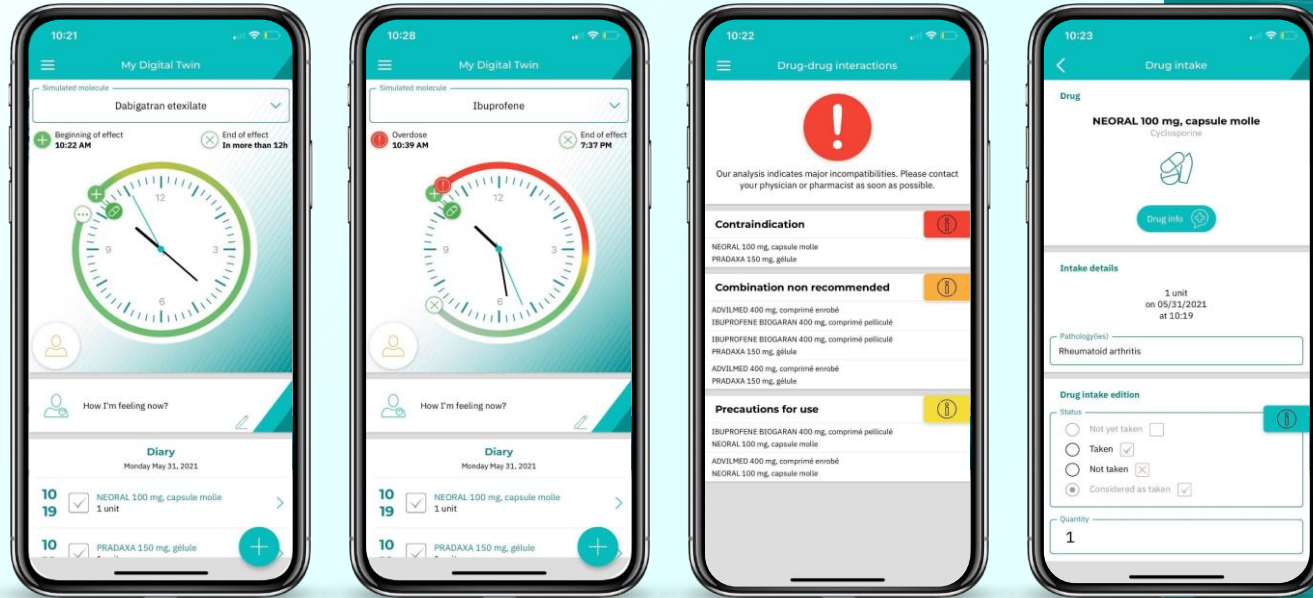f.astic@exactcure.com
+33 6 73 18 25 72

Objectives

➢ Become one of the **CRANE services**

➢ Participate to an integrated and tailored care model to enable **self-management of chronic conditions in European rural areas**.

➢ Help improve **trust, adherence, engagement and motivation**

➢ Facilitate self-management of **CVDs and COPD**

Tech for Good Health

ExactCure develops a solution to **personalize medications** and **properly use drugs**

Solution : Personalized in silico drug modeling

A *Digital Twin* to simulate the concentration of medicines in the blood of patients **based on their personal characteristics** (weight, renal status, genotype...)

gender

renal **status**

Kg weight

genetics

liver **status**

age

And more ...

$$\frac{1}{\left(\det(\tilde{\Sigma})\right)^{\frac{k}{2}} \cdot \left(\det(\tilde{S})\right)^{\frac{l}{2}}} \cdot \int \tilde{\psi}\left(c_{shared}, \tilde{C}_{specific}, \tilde{\pi}_{shared}, \tilde{\pi}_{specific},\right.$$

$$= \frac{1}{\left(\det(\tilde{\Sigma})\right)^{\frac{k}{2}}} \cdot \int \tilde{\psi}\left(c_{shared}, \tilde{C}_{specific}, \tilde{\pi}_{shared}, \tilde{\pi}_{specific}, \tilde{e}, \tilde{r},\right.$$

Pharmacokinetics / Pharmacodynamics
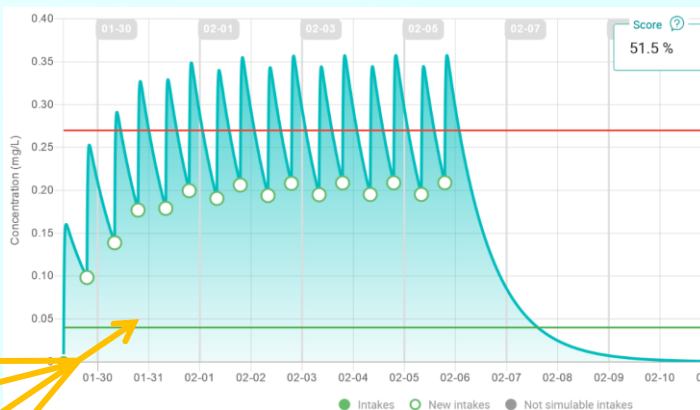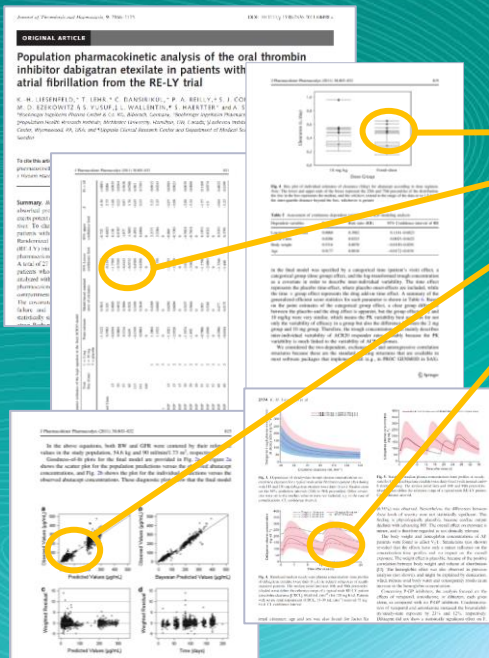Personalized PK/PD simulations

For Patients

- ✓ **Avoid medication errors**
- ✓ Improve **adherence**
- ✓ **Monitor** in real time
- ✓ **History** of reported effects correlated to drug concentration
- ✓ **Share** with Professionals

Avoid under-doses, overdoses and drug interactions

6

For Healthcare Professionals

Example: dabigatran

Used to treat cardio-vascular diseases

- Woman
- 55 years old
- 45 kg
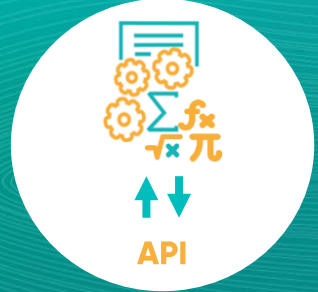- Strong renal impairment
- Normal genotype

150 mg 2/day

↓

75 mg 1/day
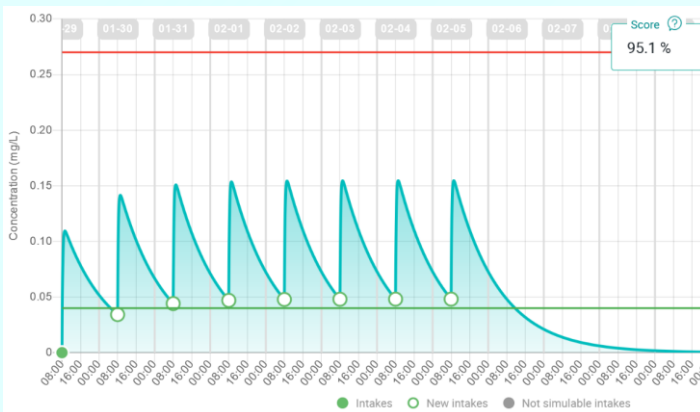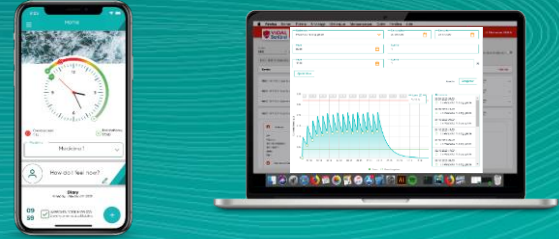
Adapt posology to each individual patient

Medical Device

EXATWIN

A Core Simulation Engine

API

MaaS = **Model as a Service**
"Powered by ExactCure®"
personalized PK/PD simulations

CE

EXAMED

A User Interface

Mobile for **patients** + Web for HCPs
incl. **additional services**
Can be white-labeled

CE

Call our API to integrate simulations into your platform

3 innovations to Properly Use Drugs

1

Disruptive Usage

Monitor drug concentration

2

Meta–modeling

Aggregate state-of-the-art literature

3

Patient Feedback

AI to fine-tune models in real time

Track Record

Awarded disruptive technology
based on fundamental research
+
Customers
Med&Moi app +1000 users/week

- Fundamental Research
- 2018 Established, Accelerated
- 2018 EU Seal of Excellence
- 2019 Seed Round i-Lab
- 2019 Vidal Partnership
- 2020 Elsevier, Dômes Pharma
- 2021 UPSA, EU project
- 2022 TRHC, France 2030

Projects – Finished, runnning or (in preparation)

(CVD – Atrial Fibrillation)

Pain / Chronic rheumatisms

Kidney cancer

Psychiatry

Allografts

(Epilepsy)

(Immunosuppression)

FREQUENCY OF USE

After 3 months, 75% of patients still use the app at least once a week (up to several times a day)
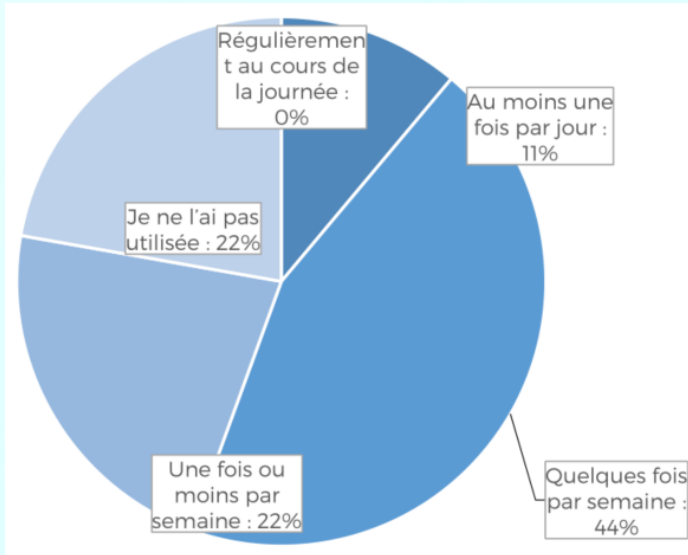
« ExaMed helped me, this app actually cares about me. »

Main Awards, Prizes and Recognition

"eHealth" grant decided by the French Prime Minister

EU Seal of Excellence.
H2020 RIA Project (5% success rate)

From the French Ministry of Research in person

"Most successful INNOLABS SME" (119 EU candidates)

1st prize from the French Society of Digital Health

Analyzed in article by INSEAD Strategy Professor

Speaker at MIT's "AI for Healthcare" summit

Cited in same article as Elsevier and Certara

Featured in same broadcast as Astra Zeneca

Laureate of several EIT Health EU programs

EXACTCURE
Your Digital Twin for a Personalized Medication

CRANE

➤ Propose **personalized drug simulations** as a CRANE service

➤ Participate to an integrated and tailored care model to enable **self-management of chronic conditions in European rural areas**.

➤ Help improve **trust, adherence, engagement and motivation**

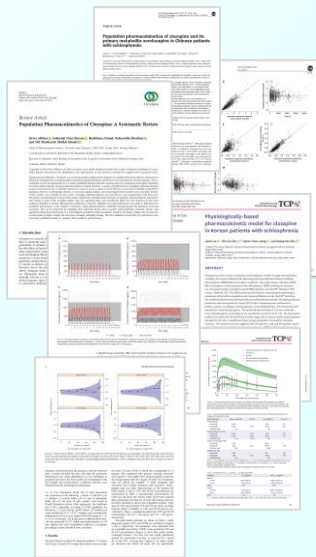➤ Facilitate self-management of **CVDs and COPD**

Thank-you

Our ambition: become the worldwide reference

in personalized medication simulations

f.astic@exactcure.com
+33 6 73 18 25 72

s.benito@exactcure.com

f.dayan@exactcure.com

Proven technology – Publications

NLP
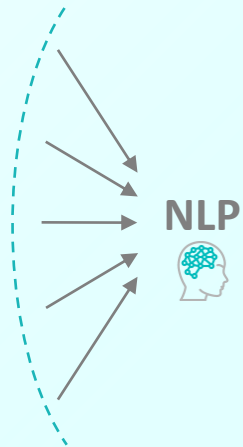
PMID	MADPE	MDPE
22820910	34,54	19,23
24342896	31,18	15,93
21422906	35,82	11,91
30956977	32,52	11,68
12188102	31,32	4,47
9384461	29,39	-18,96
19349931	43,9	38,5

7 best models
from literature
Tested on
**53 patients
(external evaluation)**

PMID	MADPE	MDPE
EXACTCURE Composite	25,11	-17,87

Best model in the world
by ExactCure

**Clozapine
(psychiatry)**

PAGE

GMP

THERAPEUTIC DRUG MONITORING
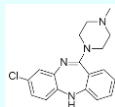
2 posters   Speaker   1 article
                                    published

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For a safer self-medication at home for the whole family

Download ExaMed

For chronic and polymedicated patients linked to their healthcare professionals