

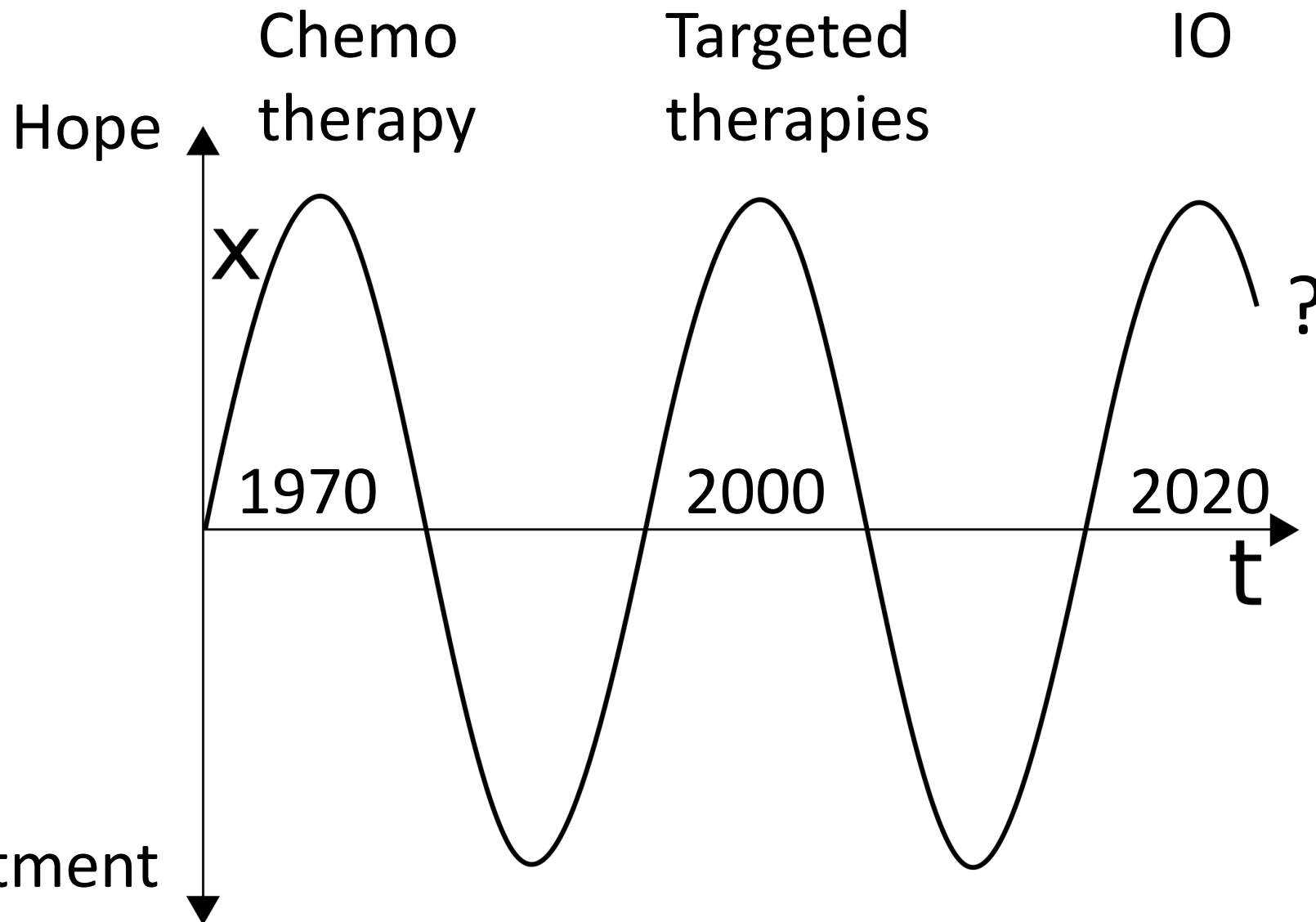
Cancer IO

Translating Immuno-Oncology into Health Actions

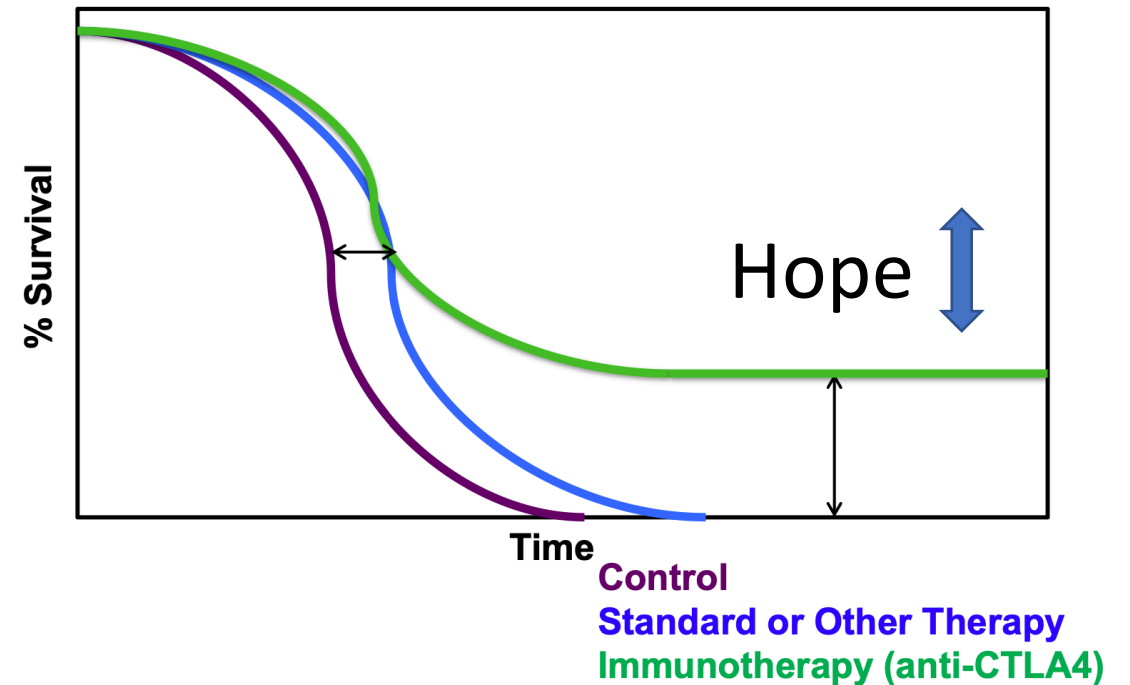
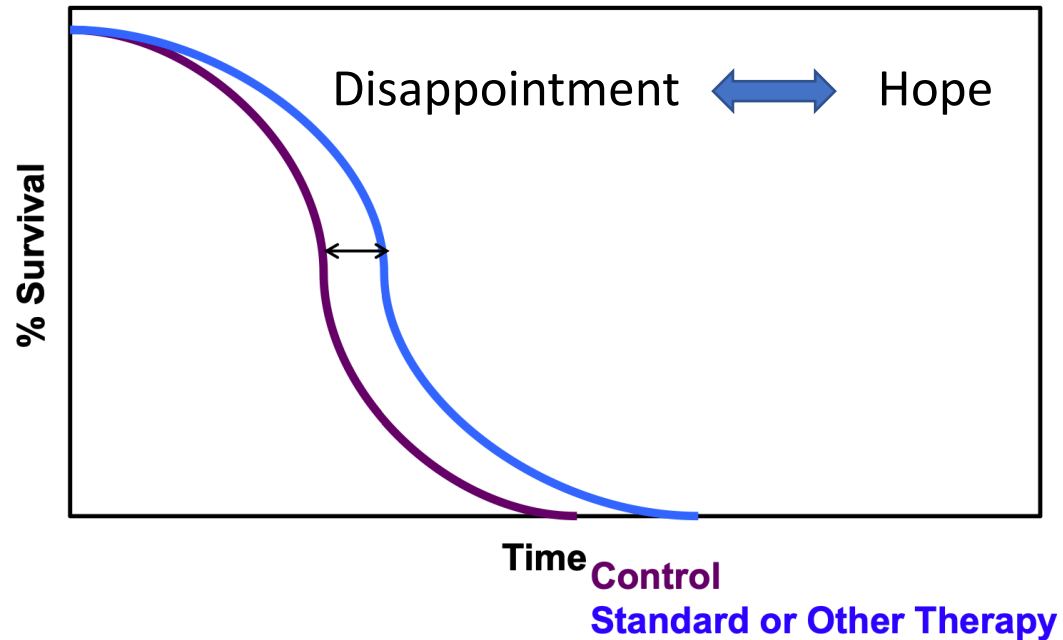
Themes 1-3

Year 2021

A short history of cancer treatment



Immunotherapy has radically changed our view to the question:
Can we cure cancer?



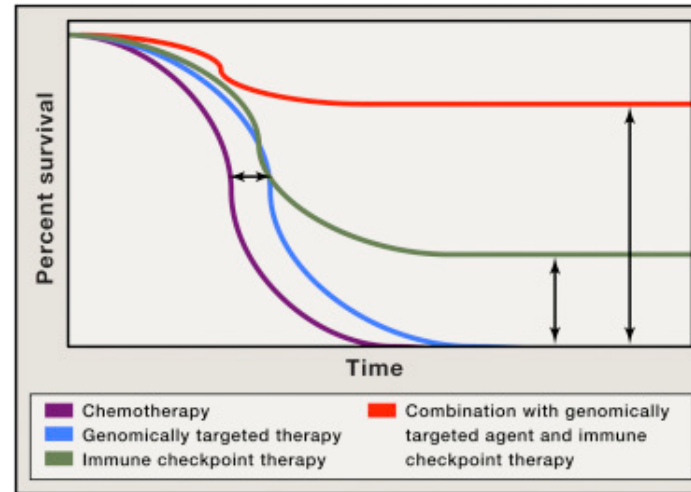
IO – what ?

Immuno-oncology, immunotherapy

Surgery

Chemotherapy and radiation

Targeted therapies



Combination immunotherapies

Immunotherapies

Immunotherapy stimulates body's own immune system to fight the cancer

Approved/being tested as treatment for >20 different cancer types

IO efficient in cancer types previously considered death sentences (e.g. metastatic melanoma)

Due to the immunological memory, the responses are often durable and persistent even after the patients are withdrawn from treatments

IO treatments target the cancer tissue, sparing healthy tissue. Immune system may become overactivated, which leads to adverse effects

Future: IO combination therapies



Position 2020 (2019)	Mechanism of action (pharmacology)	No. of active compounds 2020 (2019)
1 (1)	Immuno-oncology therapy	2,605 (1,875)
2 (2)	Immunostimulant	1,293 (1,387)
3 (3)	T cell stimulant	718 (404)
4 (4)	Immune checkpoint inhibitor	404 (327)
5 (5)	Immunosuppressant	191 (199)
6 (6)	Angiogenesis inhibitor	191 (186)
7 (7)	Gene expression inhibitor	154 (154)
8 (9)	Radiopharmaceutical	147 (122)
9 (7)	Vascular endothelial growth factor (VEGF) receptor antagonist	140 (149)
10 (10)	Apoptosis stimulant	127 (127)
11 (-)	Genome editing	117 (-)
12 (10)	Opioid mu receptor agonist	114 (116)
13 (14)	Immune checkpoint stimulant	113 (99)
14 (21)	PD-L1 antagonist	103 (74)
15 (130)	CD3 agonist	100 (22)

Pharma's cancer drug pipelines combined

Source: Pharmaintelligence

Costs of Cancer Medicines

Costs of cancer
treatment/ year

2000

\$5000 ->
\$10.000

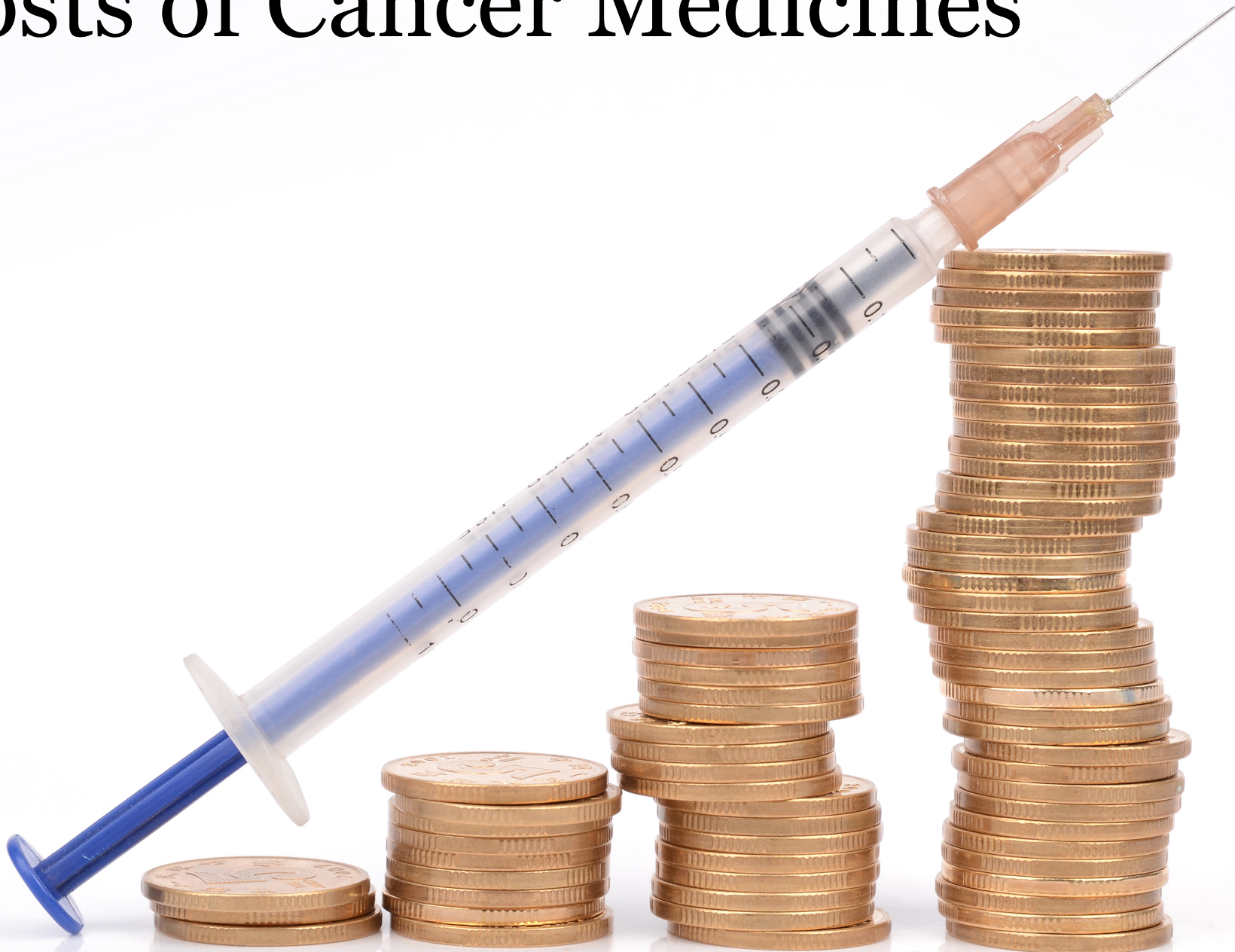
2012

\$100.000
(€40.000-100.000)

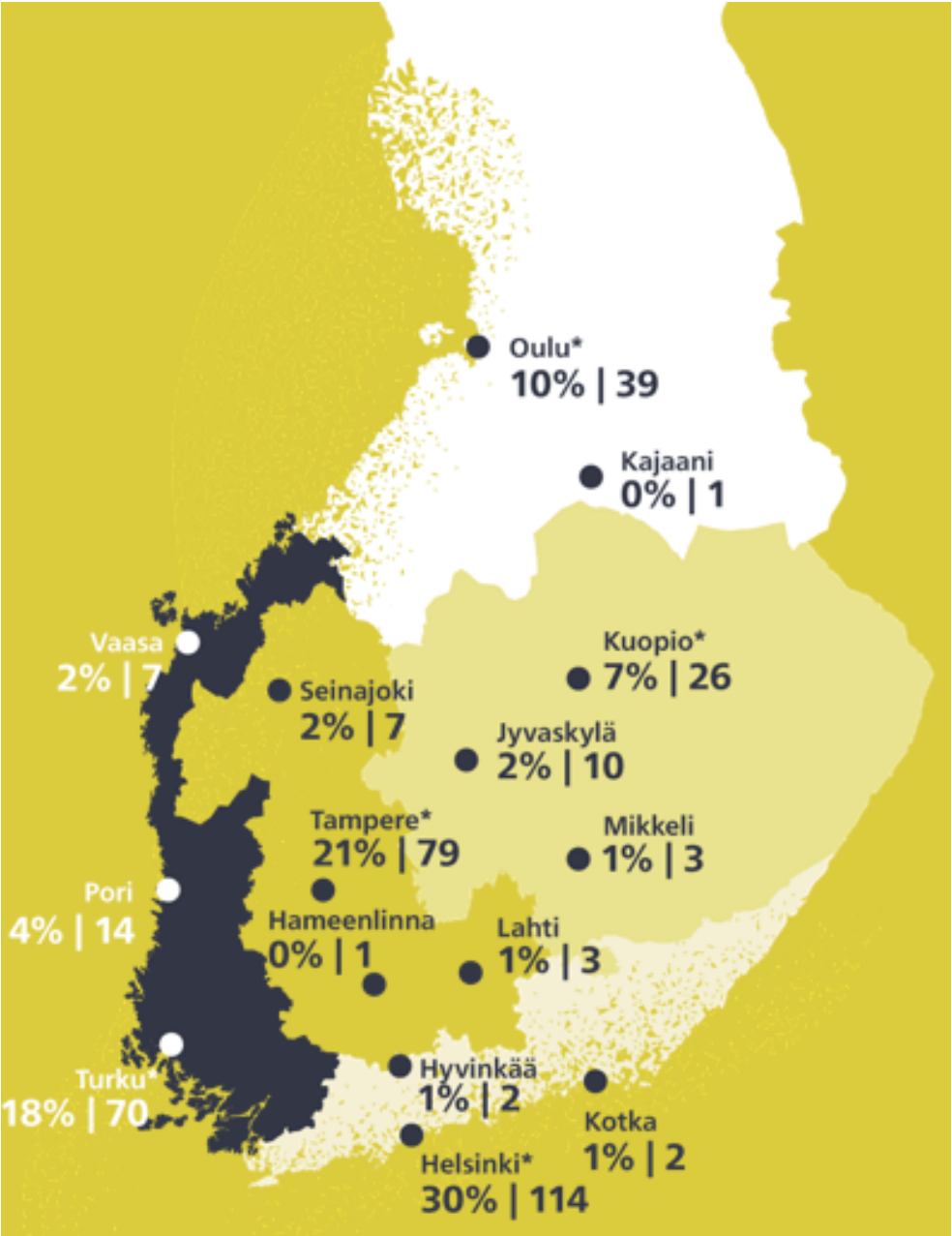
2020

Combinations (2-3
x price)

CAR-T therapies
Up to 0.5 M\$



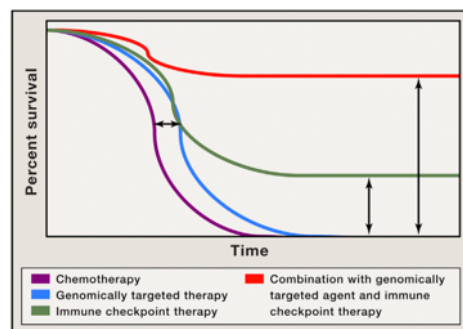
How do we ensure, that in the future state-of-the-art cancer care will be given to those, who need it and not only to those who can afford it ?



Immuno-oncology (IO) landscape

The vast potential of immuno-oncology:

Revolutionary Efficacy



Increased uptake of IO drugs

PD-1/PD-L1 usage in European countries

Estimated patient days / 1000 inhabitants

— 2016 — 2017 — 2018 — 2019

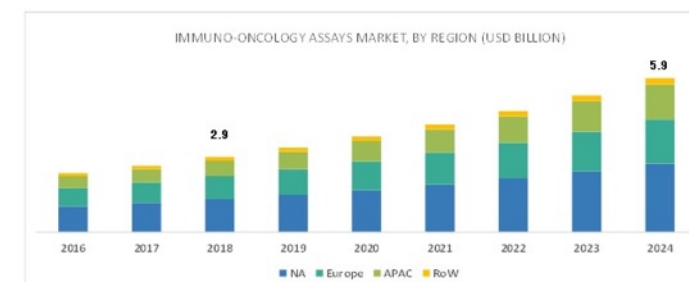


Usage has been calculated on the basis of volume sold for PD-1/PD-L1 products. The products included in this report represent over 90% of the European PD-1/PD-L1 market.
Calculation method: Number of packages combined with product during regimen to calculate patient days in treatment and then compared to population. The absolute patient day numbers are estimates and should be treated as such.

51

Growing IO market

IMMUNO-ONCOLOGY ASSAYS MARKET, BY REGION (USD BILLION)



... But also emerging problems

Cost of new cancer medicine

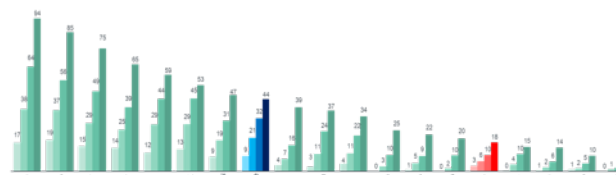


Slow IO uptake in Finland

PD-1/PD-L1 usage in European countries

Estimated patient days / 1000 inhabitants

— 2016 — 2017 — 2018 — 2019



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3

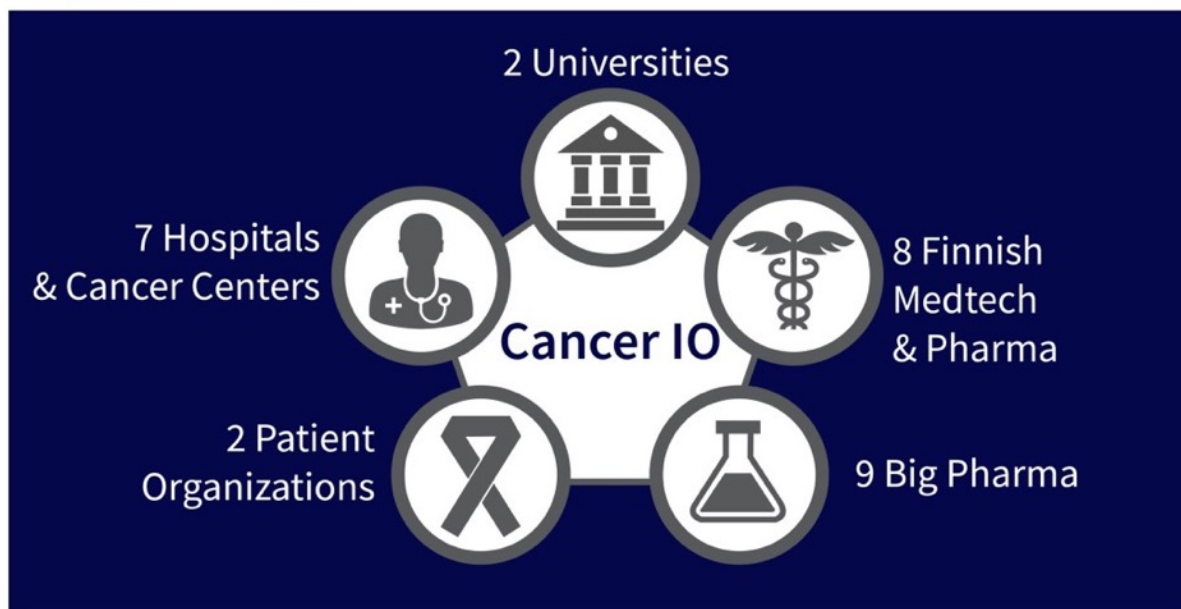
Lack of biomarkers



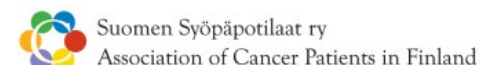
Broad Cancer IO Network



Together in Cancer IO



**BUSINESS
FINLAND**



What does the Cancer IO do?



Unique solutions:

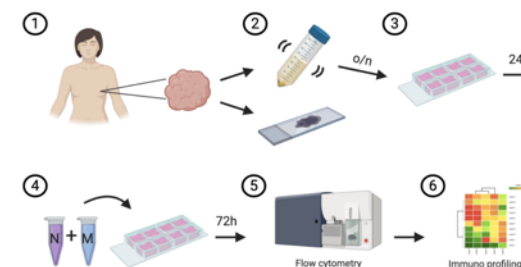
Maps Finnish IO ecosystem



Captures Strategic Foresight



Advances Finnish IO R&D



Facilitates IO uptake



Stimulates societal discussion

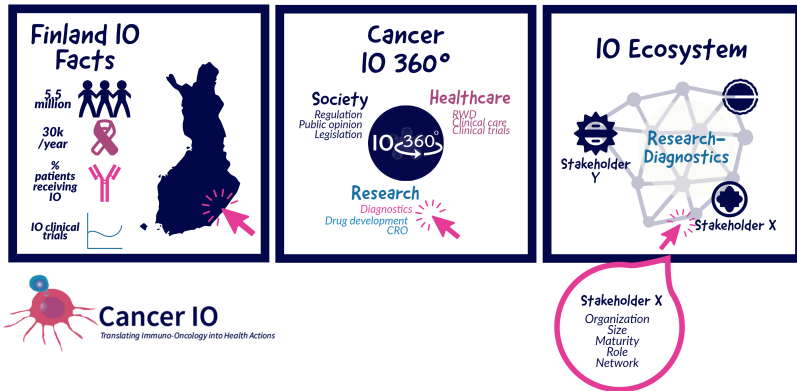


Implements national 360° outreach program

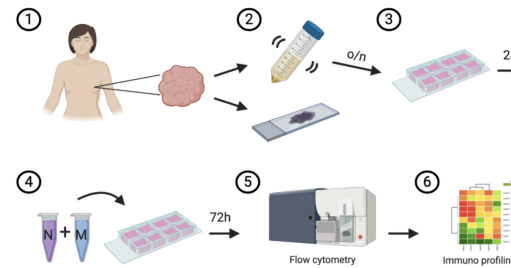


Cancer IO Themes

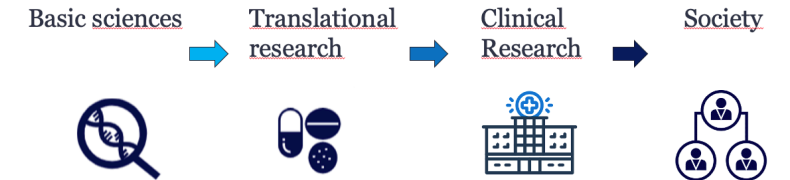
1. IO Society



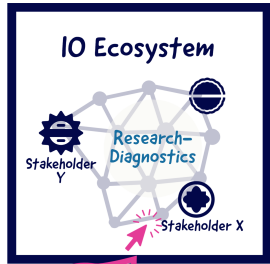
2. IO Research



3. IO Healthcare



Theme 1: IO Society



Stakeholder X
Organization
Size
Maturity
Role
Network

1.1. IO Ecosystem 2021

360° view on IO society, IO research and IO healthcare



1.2. Strategic Foresight for IO

Future scenarios, preparedness, directing the future

IO FUTURES

1.3. Communications & Societal impact

Collecting coherent and clear message to make an impact



1.3. Communications & Societal impact

IO360° digital outreach series:



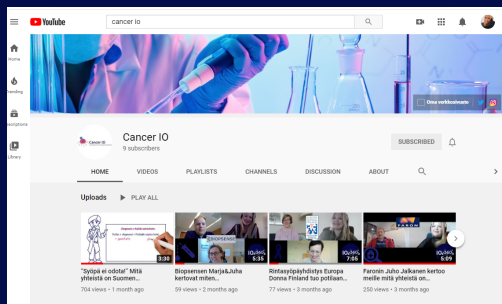
Webpage

www.cancerio.org

Year 2020:
>10 000 views
3900 unique visitors.



IO360° Blog



IO360° Vlog



Social Media

Twitter, Facebook, Instagram
750 followers



Events

Last event:
Immuunihoidot tulevat,
mutta kenelle ja milloin
Dec 2020

Next event:
Suomi Areena 2021



Director's letters

Bulletin for partners



2.1. IO Models

3D cancer cultures with tumor immune microenvironment



2.2. IO Technology

New vision to IO through spatial transcriptomics, liquid biopsy and matrix technology



2.3. IO Drugs

IO responses and toxicity in 3D cancer culture

Theme 3: IO Healthcare



3.1. IO uptake

IO uptake in Finnish hospitals and bottlenecks



3.2. IO RWD

Making IO RWD transparent and actionable



3.3. IO Clinical Trials

Scaling up Company and Investigator-Initiated Clinical Trials

Theme 3: IO Healthcare

3.2. Real world data (RWD)

3.2.1 Scientific study: Identifying IO superresponders via national RWD program



3.2.2 Database pilot: National IO registry



Registry demo

Deliverables:



3.3. IO Clinical Trials

3.3.1 IO Finland 2020: Hospital Preparedness for IO Clinical Trials

3.3.2 IO Finland 2020: Scaling up Investigator-Initiated IO Studies

- Planned and ongoing IO IIS studies in Finland and participating teams
- Bottlenecks in IIS
- Biomarker innovations for IIS
- Pharma perspective to IIS
- Patient perspective to IIS
- CRO perspective to IIS
- IIS community



Deliverables:

