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# Advanced cancer diagnostics - a global medical perspective

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SwissRe Expert Forum on Cancer Diagnostics  
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# Objectives for today

1

Understand the transformation of oncology care and the limitations of current diagnostics in personalised treatment

2

Explain how Roche will drive innovation in personalised care with advanced diagnostics and individualised treatment options

3

- Discuss how SwissRe and Roche can partner to provide patients with access to the most advanced diagnostics driving personalised care

# Personalised healthcare is the longstanding vision at Roche

A photograph of two scientists in a laboratory setting. A woman on the left is wearing safety goggles and looking at a small vial held by a man on the right. The man is also wearing safety goggles and a white lab coat. The background is a bright, out-of-focus laboratory environment.

“ Roche’s vision is to unlock the full potential of personalised healthcare for patients through the development of breakthrough medicines and leading diagnostics.”

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## **A new paradigm of personalised oncology care**

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**Roche's approach to drive innovation in  
comprehensive diagnostics**

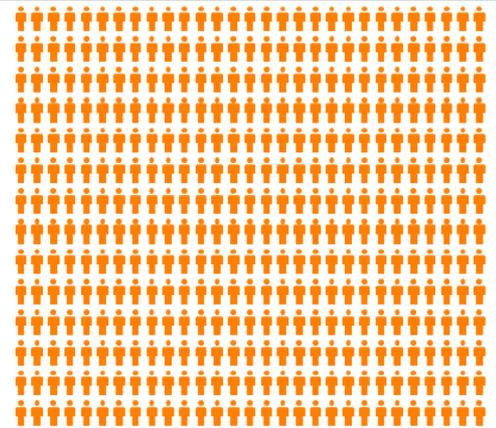
**Partnering to achieve patient access to  
comprehensive diagnostics**

# The transformation of cancer care

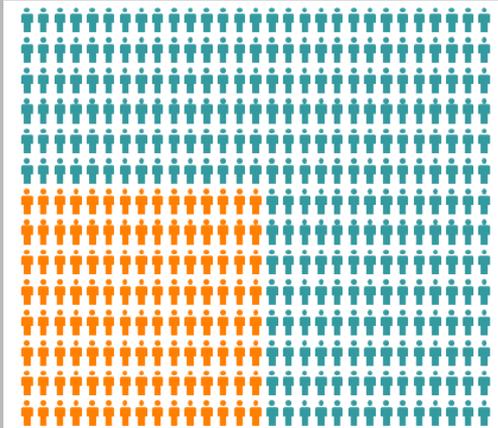
*Understanding disease biology drives cancer care becoming more personalised*

Advances in cancer biology & diagnostics drive future options for cancer care

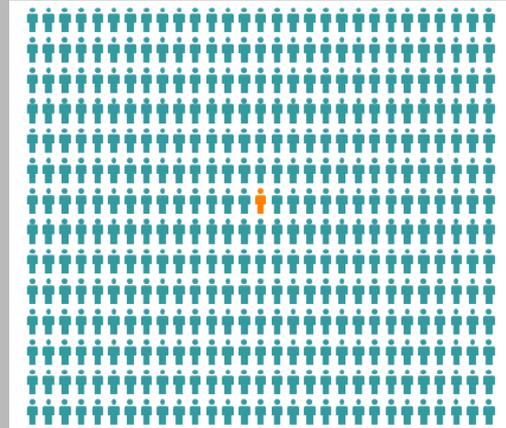
One drug fits all



One patient group,  
one biomarker, one drug



One patient, one tumor  
profile, more options

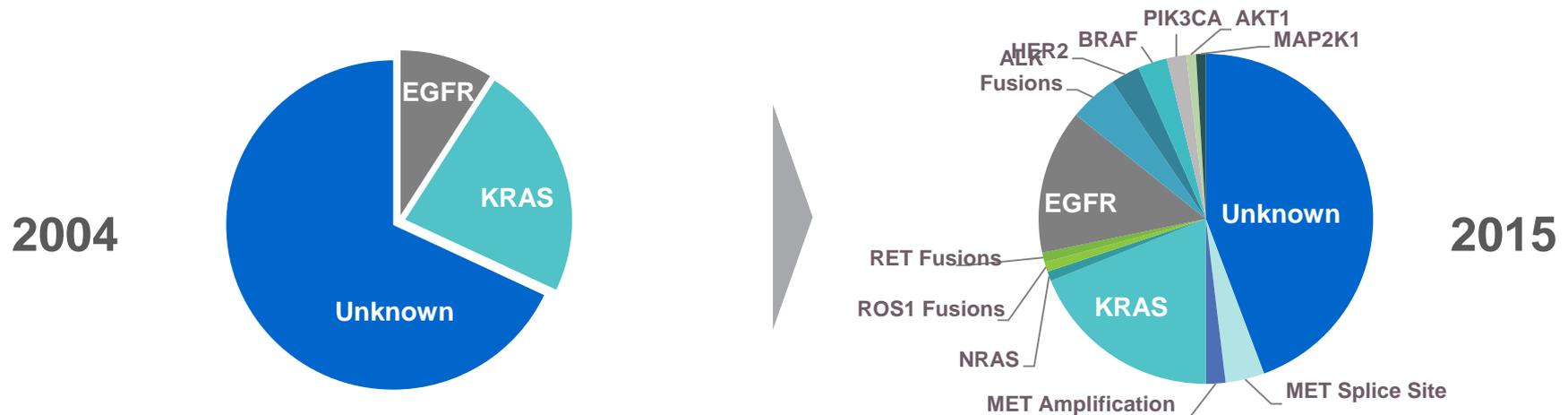


Cancer care moves towards comprehensive diagnostics and more options, with an individualised treatment plan for each patient

Personalised Healthcare aims to identify the right treatment for an individual patient at the time of the treatment decision

# The genetic complexity of lung cancer

*We are beginning to understand the full spectrum*



A decade ago, genomic alterations were known to be important in only 1/3 of non-small cell lung cancer cases (NSCLC)

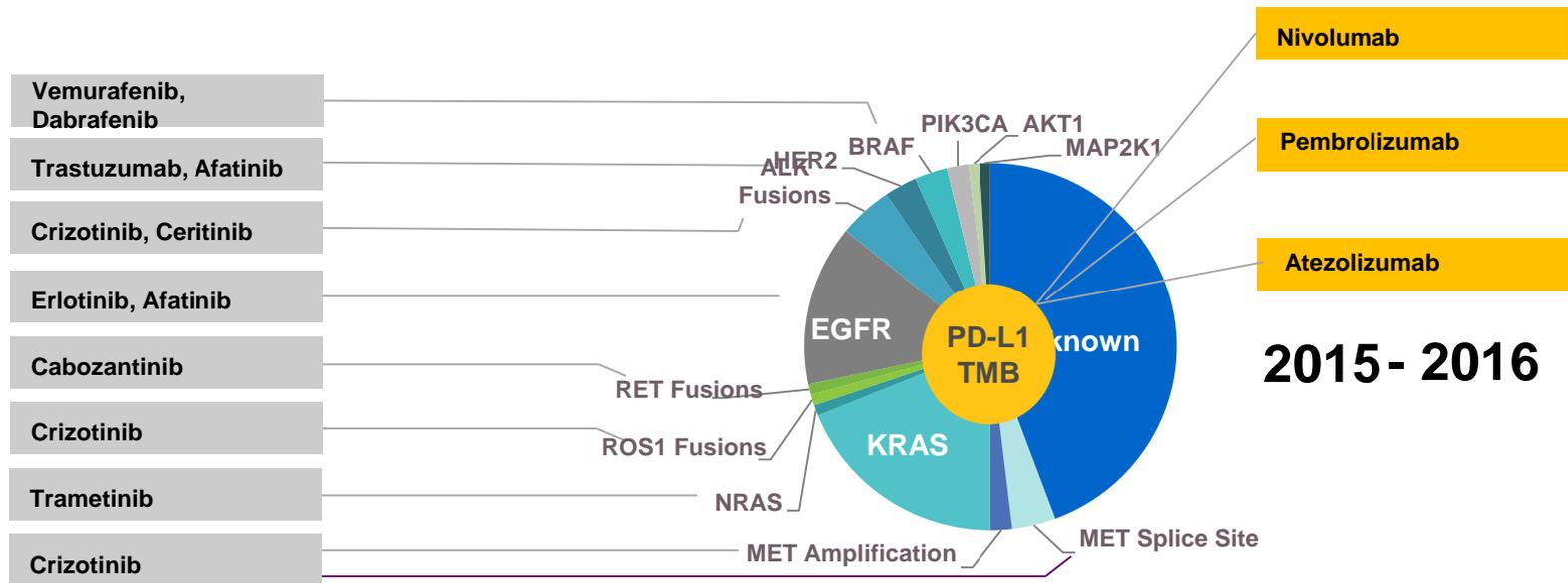
Today, there are genomic alterations known to drive cancer development in more than half of all NSCLC cases

# The genetic complexity of cancer

*Understanding disease biology is changing clinical practice*

## Targeted therapy

## Cancer Immunotherapy



**2015 - 2016**

Unlocking the full potential of targeted therapies and cancer immunotherapies requires new advanced diagnostics

# Limitations of current diagnostics solutions

Tissue remains gold standard for testing. Many patients do not have tissue sample available

Current diagnostics for targeted therapies are not always fully comprehensive

Current diagnostics for cancer immunotherapy agents are insufficient to reliably drive treatment decisions

Current diagnostics are not optimally automated and standardized, limiting their use for research and development

# **A new paradigm of personalised oncology care**

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**Partnering to achieve patient access to  
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# Roche and Foundation Medicine Inc. (FMI)

*Entered into a broad strategic collaboration in 2015*

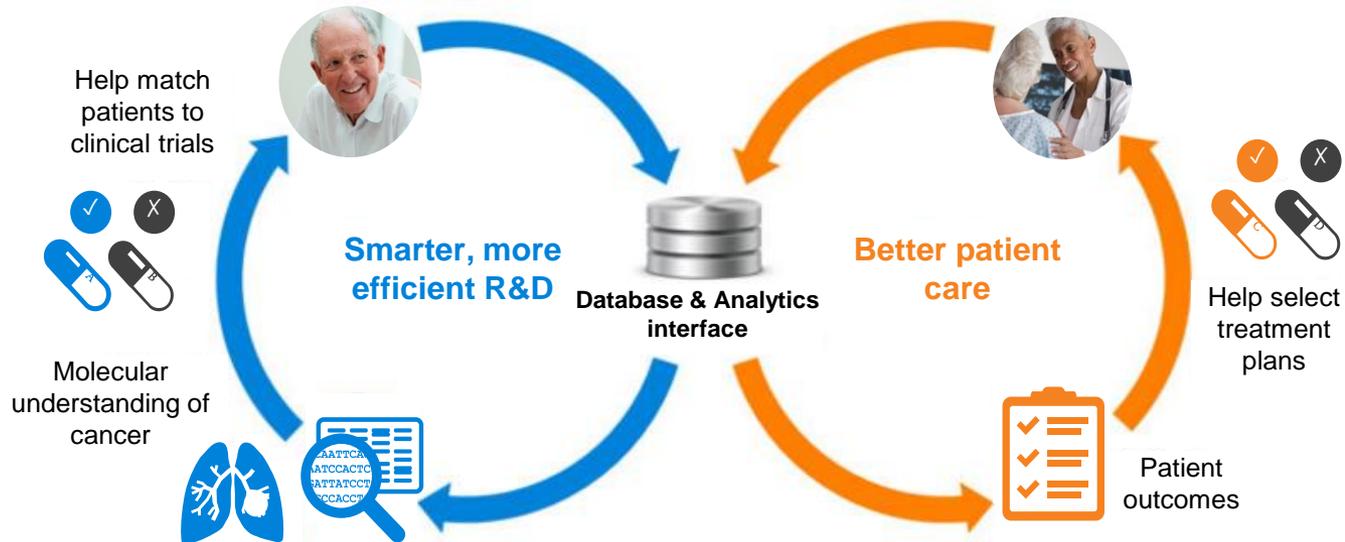


The strategic collaboration aims to further advance **FMI's leading position in molecular information and analysis** while **providing Roche a unique opportunity to identify and develop novel treatment options for patients**

**Foundation Medicine** is a **molecular information company leading a transformation in cancer care**, where each patient's treatment is informed by a **deep understanding** of the **molecular changes** that contribute to their disease.

# Roche's strategic partnership with FMI

*Molecular information to create insights and improve patient care*



Standardised molecular information from NGS-based comprehensive genomic profiling is key to Roche's mission to improve R&D and patient care

# Foundation Medicine's portfolio

*Next Generation Sequencing + molecular information for solid tumors and heme malignancies; tissue-based and plasma-based*



Today

- ALK [FISH/IHC]
- EGFR [PCR]
- BRAF [PCR]
- KRAS [PCR]
- HER2 [IHC/ISH]

Individual testing



Tomorrow

ATTGCTTGGCCAATCTAGTCAACTTTGAC  
TAAGGCTATTGCTTGGCCAATCTAGTCAA  
CTTTGACTAAGGCTATTGCTTGGCCAATC  
TAGTCAACTTTGACTAAGGCTATGCTTGG  
CCAATCTAGTCAACTTTGACTAAGGCTAT  
TGCTTGGCCAATCTAGTCAACTTTGACTA  
AGCTATTGCTTGGCCAATCTAGTCAACT  
TTGACTAAGGCTATTGCTTGGCCAATCTA  
GTCAACTTTGACTAAGGCTATTGCTTGGC  
CAATCTAGTCAACTTTGACTAAGGCTATT  
GCTTGGCCAATCTAGTCAACATTGCTTGG  
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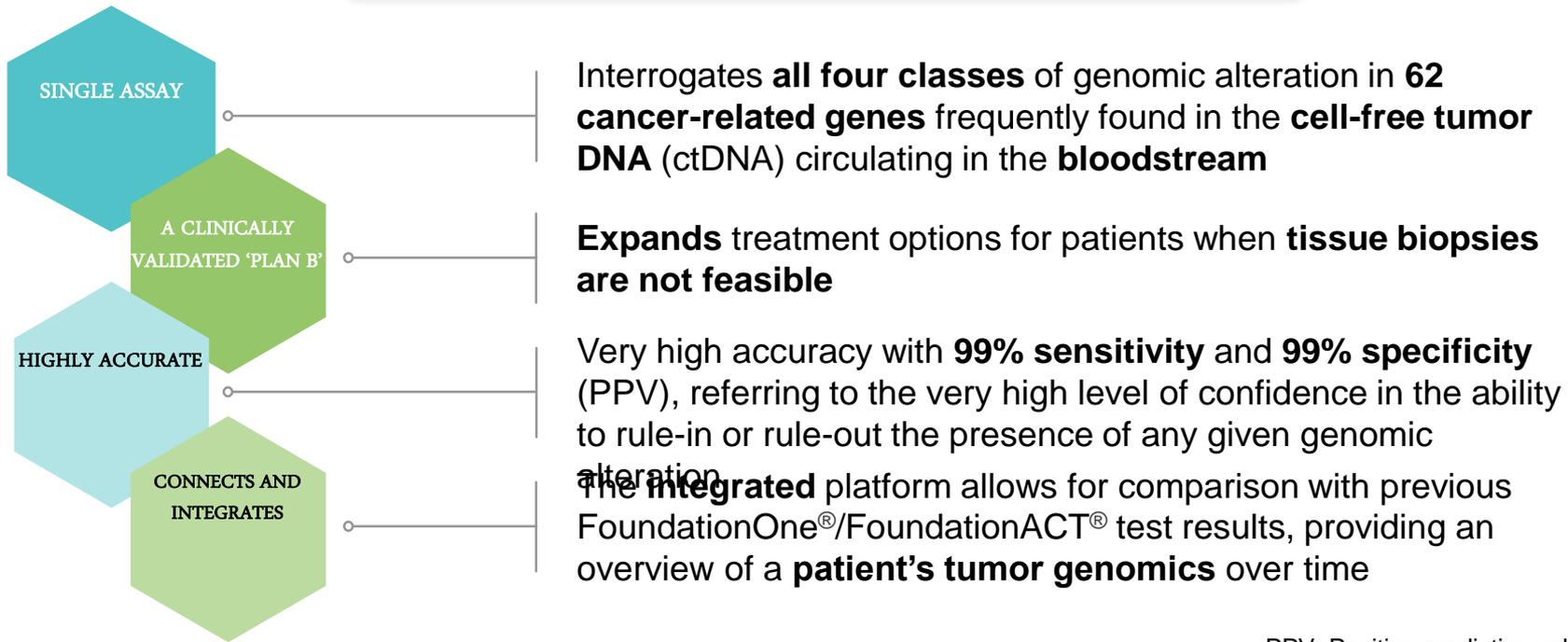
**FOUNDATION ONEDx**  
300+ alterations

Comprehensive panel

Tissue-based testing will move from single gene companion diagnostics to comprehensive panels

# FoundationACT

*FMI's liquid biopsy solution*

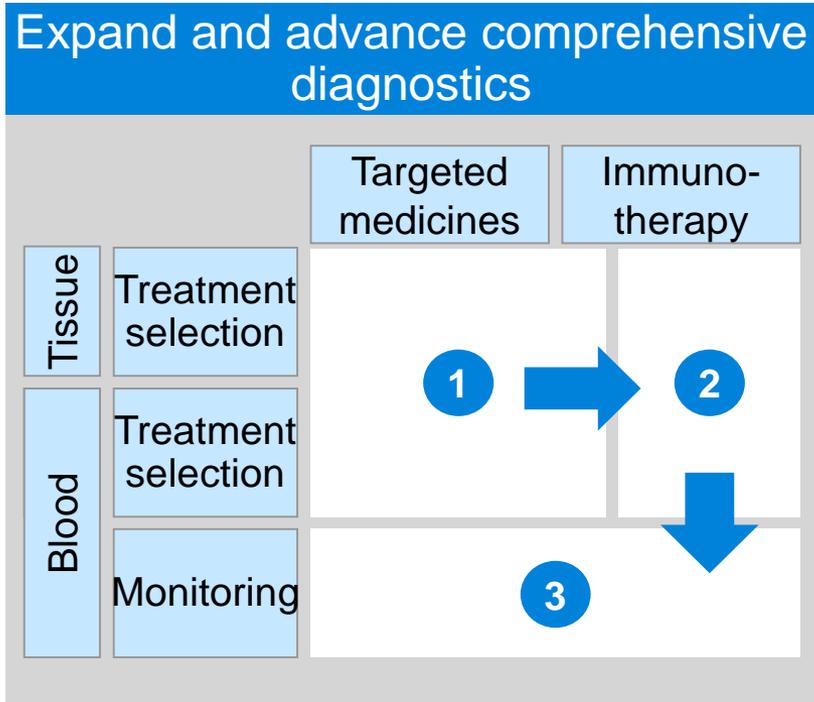


PPV: Positive predictive value

Blood-based testing will expand treatment options for patients when tissue samples are not available

# The plan ahead

*Moving to comprehensive diagnostics for cancer immunotherapy and blood-based monitoring*



- 1 At present**
  - FoundationONE, with expanding features to for cancer immunotherapy agents<sup>1</sup>
  - FoundationONEDx
  - FoundationACT
- 2 Comprehensive Cancer Immunotherapy panel for diagnostics**
- 3 Blood-based monitoring**

FMI & Roche Diagnostics are strong partners to develop the Roche Pharma therapy portfolio

<sup>1</sup> Features include e.g., analysing Tumor Mutational Burden

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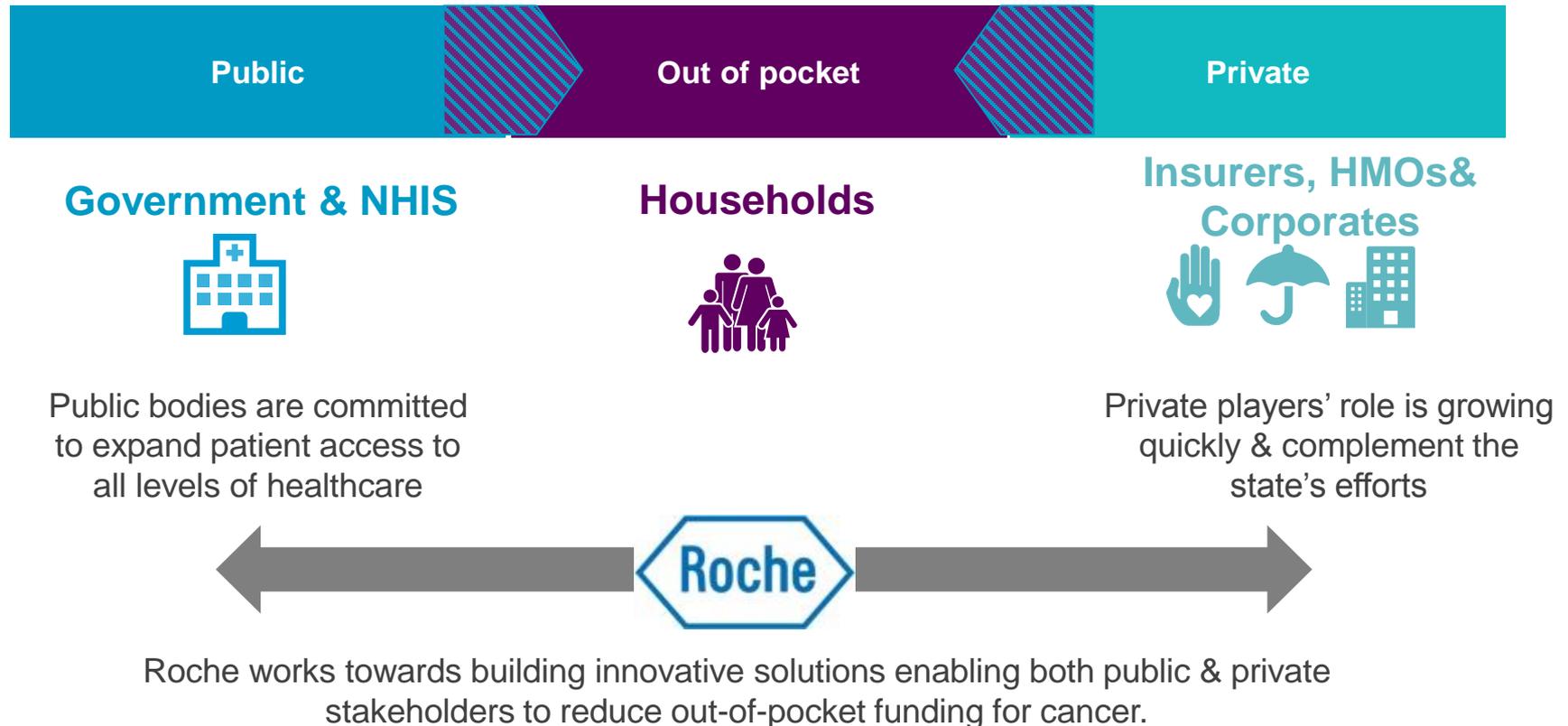
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# Access to advanced comprehensive diagnostics

Roche

*Similar payer types co-exists in each country, but reimbursement is not yet in place outside of the USA*



Private insurance represents a key opportunity to enable patient access to innovative solutions, especially in countries with no or low likelihood of public reimbursement in the short-mid term.

# Summary

1

Oncology care is undergoing a transformation towards individual treatment plans. Unlocking the full potential of this new paradigm is not possible with the current broadly available diagnostics

2

- Roche and FMI are partnering for success in delivering comprehensive, standardized tissue- and blood-based diagnostics to innovate R&D and improve personalized patient care

3

- Private insurance represents a key opportunity to enable patient access to Roche and FMI's innovative comprehensive diagnostics solutions



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*Doing now what patients need next*

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