Turning innovation into patients benefit

Karl Mahler, Head Investor Relations

Zuerich, August 2016
This presentation contains certain forward-looking statements. These forward-looking statements may be identified by words such as ‘believes’, ‘expects’, ‘anticipates’, ‘projects’, ‘intends’, ‘should’, ‘seeks’, ‘estimates’, ‘future’ or similar expressions or by discussion of, among other things, strategy, goals, plans or intentions. Various factors may cause actual results to differ materially in the future from those reflected in forward-looking statements contained in this presentation, among others:

1. pricing and product initiatives of competitors;
2. legislative and regulatory developments and economic conditions;
3. delay or inability in obtaining regulatory approvals or bringing products to market;
4. fluctuations in currency exchange rates and general financial market conditions;
5. uncertainties in the discovery, development or marketing of new products or new uses of existing products, including without limitation negative results of clinical trials or research projects, unexpected side-effects of pipeline or marketed products;
6. increased government pricing pressures;
7. interruptions in production;
8. loss of or inability to obtain adequate protection for intellectual property rights;
9. litigation;
10. loss of key executives or other employees; and
11. adverse publicity and news coverage.

Any statements regarding earnings per share growth is not a profit forecast and should not be interpreted to mean that Roche’s earnings or earnings per share for this year or any subsequent period will necessarily match or exceed the historical published earnings or earnings per share of Roche.

For marketed products discussed in this presentation, please see full prescribing information on our website – www.roche.com

All mentioned trademarks are legally protected.
Performance update

Innovation and differentiation

Improving the standard of care

Outlook
Q2 2016: Sales growth for fifth consecutive year

All growth rates at Constant Exchange Rates (CER)
HY 2016: Strong core operating profit & margin

% of sales

CHFbn

HY 2012: 8.6
HY 2013: 9.5
HY 2014: 9.4
HY 2015: 9.2
HY 2016: 9.9

CER=Constant Exchange Rates

+5% at CER
Continued leadership in innovation

Launches at historical high

5 NME launches in a year
Performance update

Innovation and differentiation

Improving the standard of care

Outlook
Roche strategy: Focused on medically differentiated therapies

**Regulators:**
Optimised benefit / risk ratio

**Payors:**
Optimised benefit / cost ratio
Pillars of early R&D
Preserving cultures – increasing collaboration in CIT

Cancer Immunotherapy

OCREVUS
lampalizumab

emicizumab

emactuzumab
aCD40
vanucizumab
aCEA/CD3 TCB
aFAP-IL2v FP
aCEA-IL2v FP

aOX40
IDOi
aCD20/CD3 TCB
aTIGIT
Approach towards innovation
Prioritizing rigorously

We select at late stage entry

...to increase sales potential

Medical need

Illustrative

Clinical differentiation

Sales

Time

Greater differentiation

Continued
Disqualified
Investing in large molecules capacity

- Recent approvals and pipeline trigger investments in biologics manufacturing
- Divestment of small molecules manufacturing

CMO=contract manufacturing organization; *Sources: BioPlan Associates Report (2014) and Roche
Performance update

Innovation and differentiation

Improving the standard of care

Outlook
2016 onwards: Significant launch activities

- **Venclexta**
  - R/R CLL with 17p del

- **Cotellic + Zelboraf**
  - BRAFmut melanoma

- **Alecensa**
  - 2L ALK+ NSCLC

- **Tecentriq**
  - 2L+ bladder cancer

- **Tecentriq**
  - 2/3L lung cancer

**2016**
- **Gazyva**
  - R/R iNHL (GADOLIN)

**2017**
- **Perjeta + Herceptin**
  - eBC HER2+ (APHINITY)

- **Gazyva**
  - 1L iNHL (GALLIUM)

- **Actemra**
  - Giant cell arteritis (GIACTA)

**2018**
- **Tecentriq + Avastin + chemo**
  - 1L NSCLC

- **Tecentriq + Avastin**
  - 1L RCC

- **Alecensa**
  - 1L ALK+ NSCLC

**OCREVUS**
- RMS/PPMS

**Emicizumab (ACE910)**
- Hemophilia A

**Lampalizumab**
- Geographic atrophy

---

Outcome studies are event-driven: timelines may change. Standard approval timelines of 1 year assumed.
Why cancer immunotherapy is transformative

“In the last two decades we've focused on hundreds of oncogenes as drivers in cancer, each one defining a different disease and a different treatment....

The immune system sees cancer as one disease. Now we can turn our focus to enhancing the immune system's ability to see the tumour.”

Gordon Freeman, Ph.D.
Dana Farber Cancer Institute
At CITC Advisory Board, Jan 21, 2016
Significant variability in treatment response to cancer immunotherapy

**Ph1 Tecentriq monotherapy  UBC: IC2/3**

- **PROGRESSIVE DISEASE (PD)**
- **STABLE DISEASE (SD)**
- **DURABLE RESPONSES (PR/CR)**

UBC=urinary bladder cancer; PR=partial responses; CR=complete responses
The 7 steps of the cancer immunity cycle guide our prioritization framework for development
Different tumours show different immune phenotypes and will need different solutions

<table>
<thead>
<tr>
<th>Inflamed</th>
<th>Immune Excluded</th>
<th>Immune Desert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma</td>
<td>Lung</td>
<td>Bladder</td>
</tr>
<tr>
<td></td>
<td>TNBC</td>
<td>Colorectal</td>
</tr>
<tr>
<td></td>
<td>Gastric</td>
<td>Ovarian</td>
</tr>
</tbody>
</table>

**Inflamed**
- CD8+ T cells infiltrated, but non-functional
- Accelerate or remove brakes on T-cell response

**Immune Excluded**
- CD8+ T cells accumulated but not efficiently infiltrated
- Bring T-cells in contact with cancer cells

**Immune Desert**
- CD8+ T cells absent from tumor and periphery
- Increase number of antigen-specific T-cells or increase antigen presentation
Immune phenotypes and the cancer immunity cycle

**Key Questions:**
- Main barriers?
- Optimally driving both antigen presentation and T cell activation

**Key questions:**
- optimally support trafficking of T cells into tumors
- enhance T cell function, role of tumor micro-environment

**IMMUNE DESERT**
CD8+ T cells are absent from tumor and its periphery

**IMMUNE EXCLUDED**
CD8+ T cells accumulated but have not efficiently infiltrated

**INFLAMED**
CD8+ T cells infiltrated, but are non-functional
A rich pipeline: 9 NMEs and a minimum of 10 combinations reading out within 2 years

Chen and Mellman. Immunity 2013;
* CIT NMEs from partners in external collaborations; ** Outcome studies are event driven, timelines may change;
NME=new molecular entity; CIT=cancer immunotherapy; FP=fusion protein; TCB=T-cell bispecific;
A rich pipeline: Program by tumour type

### Hematological tumors

<table>
<thead>
<tr>
<th>Tencertiq</th>
<th>+lenalidomide +daratumumab*</th>
<th>(R/R MM)</th>
<th>Ph1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tencertiq</td>
<td>+azacitidine</td>
<td>(MDS)</td>
<td>Ph1</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+Gazyva or +tazemetostat*</td>
<td>(R/R FL and DLBCL)</td>
<td>Ph1</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+Gazyva +polatuzumab</td>
<td>(R/R FL and DLBCL)</td>
<td>Ph2</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+Gazyva +lenalidomide</td>
<td>(R/R FL and DLBCL)</td>
<td>Ph1</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+Gazyva +bendamustin or CHOP</td>
<td>(1L FL and DLBCL)</td>
<td>Ph1</td>
</tr>
<tr>
<td>aCD20/CD3 TCB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+CD19 CAR-T*</td>
<td>(refractory aNHL)</td>
<td>Ph1</td>
</tr>
</tbody>
</table>

### Bladder

<table>
<thead>
<tr>
<th>Tencertiq</th>
<th>(2L+ UBC)</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tencertiq</td>
<td>+BCG (NMIBC)</td>
<td>Ph1</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>(2L+ UBC)</td>
<td>Ph3</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>(Dx+ adjuvant MIBC)</td>
<td>Ph3</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+ chemo (1L mUC)</td>
<td>Ph3</td>
</tr>
</tbody>
</table>

### Lung (NSCLC & SCLC)

<table>
<thead>
<tr>
<th>Tencertiq</th>
<th>(2L/3L)</th>
<th>Ph2 filed/Ph3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tencertiq</td>
<td>(1L Dx+)</td>
<td>Ph3</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+ chemo (3x 1L trials)</td>
<td>Ph3</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+ chemo ±Avastin (1L)</td>
<td>Ph3</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>(adjuvant)</td>
<td>Ph3</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+Tarceva or Alecensa</td>
<td>Ph1</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+ chemo (SCLC)</td>
<td>Ph3</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+ epacadostat*</td>
<td>Ph1</td>
</tr>
</tbody>
</table>

### Breast (TNBC & HER2+)

<table>
<thead>
<tr>
<th>Tencertiq</th>
<th>+ chemo (TNBC)</th>
<th>Ph3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tencertiq</td>
<td>+Kadcyla or Herceptin+Perjeta (HER2+)</td>
<td>Ph1</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+T-VEC*</td>
<td>Ph1</td>
</tr>
<tr>
<td>Tencertiq</td>
<td>+entinostat*</td>
<td>Ph2</td>
</tr>
</tbody>
</table>

### RCC

<table>
<thead>
<tr>
<th>Tencertiq</th>
<th>±Avastin</th>
<th>Ph2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tencertiq</td>
<td>+Avastin</td>
<td>Ph3</td>
</tr>
</tbody>
</table>

### Sarcoma

| Tencertiq   | +CMB305 (NY-ESO-1)* | Ph2 |

### Colon

<table>
<thead>
<tr>
<th>Tencertiq</th>
<th>+Cotellic (3L+)</th>
<th>Ph3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tencertiq</td>
<td>+T-VEC*</td>
<td>Ph1</td>
</tr>
</tbody>
</table>

### Melanoma

| Tencertiq   | +Zelboraf ±Cotellic | Ph1 |

### Other CIT NMEs besides Tencertiq

- Other CIT NMEs besides Tencertiq

---

= approved; *External collaborations; Other CIT NMEs besides Tencertiq

As of July 21, 2016
mNSCL: Treatment allgorism

Efficacy but also safety will play a major role

- Strength of current mono data?
- Safety, safety, safety
- Convenience

- Will PD1 or PDL-1’s be used based on 1st line treatment?

Patient Number

- mNSCLC incidence: 100%
- mNSCLC 1L drug treated: 60%
- mNSCLC 2L drug treated: 35%
- mNSCLC 3L drug treated: 5%

- I/O mono ca 25%
- I/O mono eligible
- 5%
Identify and utilize relevant biomarkers to deliver personalized medicine

**Clinical outcomes**

**Profile predictors of patient response**

- Predictive Markers of Clinical Benefit
- Predictive Markers of Immune Escape

**PERSONALIZED PLATFORM**

**REVERSE TRANSLATION**
OCREVUS: First medicine active in RMS and PPMS

Outcome studies are event-driven: timelines may change. Standard approval timelines of 1 year assumed.
OCREVUS: Active in both RMS & PPMS

- Selective depletion of a B cell subset leaving the ability to generate new B cells intact
- Administered IV twice yearly

RMS = relapsing forms of multiple sclerosis (MS) which includes patients with RRMS and SPMS with superimposed relapses; PPMS = primary progressive MS;
Emicizumab: Game changer in hemophilia A

Outcome studies are event-driven: timelines may change. Standard approval timelines of 1 year assumed.
Emicizumab addresses major medical needs for both inhibitor and non-inhibitor patients

**Emicizumab** (ACE 910)

**Non-Inhibitor**

- **On-demand treatment**
  - 1-3 times/bleeding event, IV
- **Prophylaxis treatment**
  - 3 times/week, IV

**Inhibiting Factor VIII antibodies in 20-30% of the patients**

**Inhibitor**

- **Immune Tolerance Induction**
  - 70-80 % success rate
  - limitation due to very high cost and heavy burden for patients

- **On-demand treatment with by-passing agents**
  - 2-3h intervals, IV
- **Prophylaxis with by-passing agents**
  - Every other day, IV

**On-demand treatment**

- Less frequent & SC injection

**Prophylaxis treatment**

- No potential to induce FVIII inhibitor

- Potentially more effective prophylaxis
Performance update

Innovation and differentiation

Improving the standard of care

Outlook
Positive outlook

Strong pipeline mitigates biosimilar impact

NME launches
Venetoclax, Alectinib, Cotellic, Ocrelizumab, Atezolizumab, Lebrikizumab, ACE910, Lampalizumab

Biosimilars
MabThera, Herceptin, Avastin

Marketed products

Sales

Conceptual

Pipeline

2016 outlook

<table>
<thead>
<tr>
<th>Group sales growth¹</th>
<th>Low to mid-single digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core EPS growth¹</td>
<td>Ahead of sales growth</td>
</tr>
<tr>
<td>Dividend outlook</td>
<td>Further increase dividend in Swiss francs</td>
</tr>
</tbody>
</table>

¹ At Constant Exchange Rates (CER)
Doing now what patients need next
MORPHEUS: Applied trial concept – quick assessment of assets & speedy development

Built in flexibility based on trial outcome

Indication X

Patient Entry

Basket Entry

Determination

MORPHEUS: Applied trial concept – quick assessment of assets & speedy development

Futility rules at each cohort to rapidly make decisions:

1. Stop
2. Continue, or
3. Go into registrational expansion

Built in flexibility based on trial outcome

Allows for

- intra and inter combo comparison

- patient re-entry in new combos

Max flexibility re combinations

Endpoint flexible for each indication

This or previous?
Hemophilia A: Current treatment strategies

**Episodic (on demand) treatment**
- Patients treated only when they bleed
- Can be up to 30-60 times per year

**Prophylaxis**
- Goal is to prevent bleeds
- IV infusion 2-3 times per week
- Can reduce bleed rate to 0-2 per year for non-inhibitor patients
- Should be the standard, but is still not used in ~35% of patients (treatment burden, adherence, IV access issues)
Venclexta
R/R CLL with 17p del

Cotellic + Zelboraf
BRAFmut melanoma

Alecensa
2L ALK+ NSCLC

Tecentriq
2L+ bladder cancer

Tecentriq
2/3L lung cancer

2016

Gazyva
R/R iNHL (GADOLIN)

OCREVUS
RMS/ PPMS

Emicizumab (ACE910)
Hemophilia A

2017

Perjeta + Herceptin
eBC HER2+ (APHINITY)

Gazyva
1L iNHL (GALLIUM)

Actemra
Giant cell arteritis (GiACTA)

2018

Tecentriq+Avastin+chemo
1L NSCLC

Gazyva
1L iNHL (GALLIUM)

Tecentriq + Avastin
1L RCC

Post 2018

Gantenerumab

Crenezumab

Etrolizumab

Idasanutlin

Taselisib

NMEs

line extensions
Venclexta
R/R CLL with 17p del

Cotellic + Zelboraf
BRAFmut melanoma

Alecensa
2L ALK+ NSCLC

Tecentriq
2L+ bladder cancer

Tecentriq
2/3L lung cancer

Gazyva
R/R iNHL (GADOLIN)

OCREVUS
RMS/PPMS

Emicizumab (ACE910)
Hemophilia A

Lampalizumab
Geographic atrophy

2016

Perjeta + Herceptin
eBC HER2+ (APHINITY)

Gazyva
1L iNHL (GALLIUM)

Actemra
Giant cell arteritis (GiACTA)

2017

Tecentriq+Avastin+chemo
1L NSCLC

Gazyva
1L iNHL (GALLIUM)

Tecentriq + Avastin
1L RCC

Alecensa
1L ALK+ NSCLC

2018

Post 2018

Taselisib

Gantenerumab

Crenezumab

Etrolizumab

Idasanutlin

Lampalizumab
Geographic atrophy

Tecentriq+Avastin+chemo
1L NSCLC

Gazyva
1L iNHL (GALLIUM)

Tecentriq + Avastin
1L RCC

Alecensa
1L ALK+ NSCLC
<table>
<thead>
<tr>
<th>Year</th>
<th>NMEs</th>
<th>Line Extensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Venclexta</td>
<td>R/R CLL with 17p del</td>
</tr>
<tr>
<td></td>
<td>Cotellc + Zelboraf</td>
<td>BRAFmut melanoma</td>
</tr>
<tr>
<td></td>
<td>Alecensa</td>
<td>2L ALK+ NSCLC</td>
</tr>
<tr>
<td></td>
<td>Tecentriq</td>
<td>2L+ bladder cancer</td>
</tr>
<tr>
<td></td>
<td>Tecentriq</td>
<td>2/3L lung cancer</td>
</tr>
<tr>
<td>2017</td>
<td>OCREVUS</td>
<td>RMS/ PPMS</td>
</tr>
<tr>
<td></td>
<td>Emicizumab (ACE910)</td>
<td>Hemophilia A</td>
</tr>
<tr>
<td>2018</td>
<td>Lampalizumab</td>
<td>Geographic atrophy</td>
</tr>
<tr>
<td></td>
<td>Gazyva</td>
<td>R/R iNHL (GADOLIN)</td>
</tr>
<tr>
<td></td>
<td>Perjeta + Herceptin</td>
<td>eBC HER2+ (APHINITY)</td>
</tr>
<tr>
<td></td>
<td>Gazyva</td>
<td>1L iNHL (GALLIUM)</td>
</tr>
<tr>
<td></td>
<td>Actemra</td>
<td>Giant cell arteritis (GiACTA)</td>
</tr>
<tr>
<td>Post 2018</td>
<td>Tecentriq+Avastin+chemo</td>
<td>1L NSCLC</td>
</tr>
<tr>
<td></td>
<td>Tecentriq + Avastin</td>
<td>1L RCC</td>
</tr>
<tr>
<td></td>
<td>Alecensa</td>
<td>1L ALK+ NSCLC</td>
</tr>
<tr>
<td></td>
<td>Gantenerumab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crenezumab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Etrolizumab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Idasanutlin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Taselisib</td>
<td></td>
</tr>
</tbody>
</table>
A rich pipeline: We are investigating into multifold approaches across tumor phenotypes

Status

<table>
<thead>
<tr>
<th>Status</th>
<th>Treatment</th>
<th>Phase</th>
<th>Status</th>
<th>Treatment</th>
<th>Phase</th>
<th>Status</th>
<th>Treatment</th>
<th>Phase</th>
<th>Status</th>
<th>Treatment</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph1b</td>
<td>aCD40</td>
<td></td>
<td>Ph1b</td>
<td>aCEA-IL2v FP</td>
<td></td>
<td>Ph1b</td>
<td>aCEA/CD3 TCB</td>
<td></td>
<td>Ph1b</td>
<td>aFAP-IL2v FP</td>
<td></td>
</tr>
<tr>
<td>Ph1b</td>
<td>aCEA/CD3 TCB</td>
<td></td>
<td>Ph1b</td>
<td>aCD20/CD3 TCB 1</td>
<td></td>
<td>Ph1b</td>
<td>aCD20/CD3 TCB 2</td>
<td></td>
<td>IND (2017)</td>
<td>NN</td>
<td></td>
</tr>
<tr>
<td>Marketed</td>
<td>Targeted (e.g., Tarceva, Herceptin)</td>
<td>Marketed</td>
<td>Marketed</td>
<td>aPDL1 (Tecentriq)</td>
<td>Marketed</td>
<td>Ph2</td>
<td>IDOi</td>
<td>aCSF1R</td>
<td>Ph1b</td>
<td>aTIGIT</td>
<td>Ph1b</td>
</tr>
<tr>
<td>Marketed</td>
<td>Chemo</td>
<td></td>
<td>Ph1b</td>
<td>aOX40*</td>
<td>g</td>
<td>Ph1b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Dual roles in T eff activation and T reg inhibition suggest OX40 activity in both Desert and Inflamed phenotypes