Committed to innovation, productivity and growth

Alan Hippe, CFO
Roche Group

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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;
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9. litigation;
10. loss of key executives or other employees; and
11. adverse publicity and news coverage.

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Performance update

Portfolio rejuvenation

Resource allocation

Outlook
Launch of new medicines at a record high

- Erivedge
- Perjeta
- Kadcyla
- Gazyva
- Esbriet
- Cotellic
- Zelboraf
- Ocrevus
- Atezolizumab
- Emicizumab
Innovation: Leading industry with 15 BTDs
Designations allowing us to accelerate time to market

Roche leading with 15 BTDs

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td>7</td>
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<tr>
<td>4</td>
<td>Pfizer</td>
<td>7</td>
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</tbody>
</table>

Average years from Phase 1 to Filing

- Breakthrough therapy: 3.6 years
- Accelerated review: 3.8 years
- Fast track: 5.8 years
- No: 7.5 years

Source: [http://www.focr.org/breakthrough-therapies](http://www.focr.org/breakthrough-therapies) as of March 2017; BTD=breakthrough therapy designation
Q1 2017: Sales growth for the sixth consecutive year

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

- Strong Core operating profit
- Stable margin

CHFbn

<table>
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<tr>
<th>Year</th>
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<td>2014</td>
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<tr>
<td>2015</td>
<td>17.5</td>
</tr>
<tr>
<td>2016</td>
<td>18.4</td>
</tr>
</tbody>
</table>

% of sales

- 2012: 37.7%
- 2013: 38.3%
- 2014: 37.2%
- 2015: 36.4%
- 2016: 36.4%

+4% at CER

CER=Constant Exchange Rates
Performance update

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Outlook
Development activities across the portfolio

Growth through innovation & strategic LCM

Growing the existing business by improving our own Standard of Care

- **HER2**: Sub-cut, Perjeta in eBC (APHINITY) and mBC; Kadcyla
- **CD20**: Sub-cut, Gazyva, Venclexta, Polatuzumab vedotin, T-cell bispecific
- **Avastin**: Tecentriq combo

Expanding the business through differentiated medicines in areas with high unmet need

- **Ocrevus**: RMS, PPMS
- **Alecensa**: Alk+ lung cancer
- **Tecentriq**: Lung and Bladder
- **Emicizumab**: adult & pediatric inhibitor and non-inhibitor patients
- **Lampalizumab**: Geographic atrophy

LCM=life cycle management; RMS=relapsing forms of multiple sclerosis; PPMS=primary progressive multiple sclerosis
‘Big three’: Enhancing our own standard of care
Accomplished to stabilise and grow the ‘big three’

**News flow**

- Kadcyla, Perjeta in metastatic setting
- Perjeta in the adjuvant setting (APHINITY)
- Sub-cut co-formulation

**HER2**
- Gazyva in front-line iNHL, R/R iNHL, CLL
- Venclexta, Polatuzumab vedotin, aCD20/CD3 TCB, Tecentriq
- Sub-cut

**CD20**
- No direct successor
- Combinations with Tecentriq (lung, renal)

**Avastin**

TCB=T-cell bispecific; NHL=non-hodgkin’s lymphoma; CLL=chronic lymphoid leukemia
Breast: Raising the bar in HER2+

*Herceptin SC, Kadcyla & Herceptin/Perjeta combo*

... and we will go further: combinations with Tecentriq in Phase I & II

1. Source: Datamonitor and internal estimates, US & EU5; SC=subcutaneous; BC=breast cancer
APHINITY to grow HER2 franchise

Strong value proposition in higher risk eBC patients

BC incidence rate

21% HER2+

HER2+ eBC (adj) 72k

Higher risk (Node+ ~55%, HR- ~15%, other higher risk ~5%)

New standard of care for higher risk patients

1. Source: Datamonitor and internal estimates, US & EU5; 2. Target population for Herceptin in adjuvant breast cancer (US & EU5), current Herceptin penetration ~95%; eBC=early breast cancer; adj=adjuvant
Development activities across the portfolio

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Ocrevus approved in the US
First treatment for both RMS and PPMS

- Broad label includes RMS (RRMS, relapsing SPMS) and PPMS without any limitations
- No black box warning, no additional screening or monitoring

RMS=relapsing forms of multiple sclerosis (MS) including patients with RRMS and SPMS with superimposed relapses; RRMS=relapsing-remitting MS; SPMS=secondary progressive MS; PPMS=primary progressive MS; Adapted from Lublin 1996, Arnold 2004; *=relapsing SPMS included in the label
**Alecensa in 1L ALK+ NSCLC**

*Results establish Alecensa as new standard of care*

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**Ph III ALEX results**

- Compared to crizotinib, Alecensa significantly prolonged PFS, delayed time to CNS progression, improved intracranial ORR and DOR and had a more favorable AE profile

Shaw A. *et al*, ASCO 2017; Alecensa (alectinib) in collaboration with Chugai
12 cancer immunotherapy NMEs in the clinic

Multiple approaches across three tumor phenotypes

PCV* = personalised cancer vaccine in collaboration with BioNTech; 1 = in early development at Chugai; NME = new molecular entity; IND = new investigational drug application; TCB = T-cell bispecific; tba = to be announced.
Lung: Expanding to areas with high medical need

Multiple solutions for a fragmented market

<table>
<thead>
<tr>
<th>Target</th>
<th>Combo</th>
<th>Trial</th>
<th>Results</th>
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<tr>
<td>1L ALK+</td>
<td>Alecensa</td>
<td>ALEX</td>
<td>✓</td>
</tr>
<tr>
<td>2/3L</td>
<td>Tecentriq</td>
<td>OAK</td>
<td>✓</td>
</tr>
<tr>
<td>1L non-sq</td>
<td>Tecentriq+carbo/pac+-Avastin</td>
<td>IMpower150</td>
<td>2017</td>
</tr>
<tr>
<td>1L non-sq</td>
<td>Tecentriq+carbo+nab-pac</td>
<td>IMpower130</td>
<td>2018</td>
</tr>
<tr>
<td>1L non-sq</td>
<td>Tecentriq+cis/carbo+pem</td>
<td>IMpower132</td>
<td>2018</td>
</tr>
<tr>
<td>1L Dx+</td>
<td>Tecentriq</td>
<td>IMpower110</td>
<td>2019</td>
</tr>
<tr>
<td>Adj</td>
<td>Tecentriq</td>
<td>IMpower010</td>
<td>2020</td>
</tr>
<tr>
<td>1L sq</td>
<td>Tecentriq+carbo+nab/pac</td>
<td>IMpower131</td>
<td>2018</td>
</tr>
<tr>
<td>1L SCLC</td>
<td>Tecentriq+carbo+etoposide</td>
<td>IMpower133</td>
<td>2018</td>
</tr>
</tbody>
</table>

1. Source: Datamonitor and internal estimates, US & EU5; 2. Timelines may change
**aCEA/CD3 T-cell bispecific antibody**

**A new mode of action**

![Diagram showing high avidity binding to tumor antigen and simultaneous engagement of tumor and T cells]

**Novel mode of action:**
Simultaneous binding to tumor and T cells results in:

- T cell engagement, activation and killing of tumor cells by delivery of cytotoxic granules
- T-cell engagement independent of specificity and activation status

**Status**
- Phase I study, FPI 4Q 2014
- Phase Ib combo with Tecentriq in multiple CEA-expressing tumors ongoing
- Data in 3L CRC at ASCO 2017

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<table>
<thead>
<tr>
<th>Tumor Type</th>
<th>Response Rate</th>
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<tr>
<td>CRC</td>
<td>91%</td>
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<tr>
<td>Pancreatic</td>
<td>74%</td>
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<tr>
<td>Gastric</td>
<td>64%</td>
</tr>
<tr>
<td>NSCLC (adenocarcinoma)</td>
<td>65%</td>
</tr>
<tr>
<td>NSCLC (squamous)</td>
<td>30%</td>
</tr>
<tr>
<td>Breast</td>
<td>30%</td>
</tr>
</tbody>
</table>

Additonal CEA expressing tumours

CRC=colorectal cancer; NSCLC=non-small cell lung cancer; FPI=first-patient-in; CEA=carcinoembryonic antigen
CEA-TCB + Tecentriq: promising clinical activity vs monotherapy in 3L+ MSS mCRC at high dose

**Change in target lesions from baseline [%]**

<table>
<thead>
<tr>
<th>High dose only, N=11, 80 or 160 mg</th>
</tr>
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<tbody>
<tr>
<td><strong>Best change in target lesions from baseline [%]</strong></td>
</tr>
</tbody>
</table>

- 80 mg
- 160 mg

**Change in target lesion over time**

- *Withdrawal*
- p Progression > Ongoing
- ▲ First new lesion

**Confirmed Best Overall Response RECIST v1.1**

<table>
<thead>
<tr>
<th>N=25, 5 - 160 mg MSS n=23; (92%)</th>
<th>N = 11(^a), 80 or 160 mg MSS n = 11; (100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PR</strong> 3(^b) (12%)</td>
<td>2(^b) (18%)</td>
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<tr>
<td><strong>SD</strong> 10 (40%)</td>
<td>7 (64%)</td>
</tr>
<tr>
<td><strong>DCR</strong> 13 (52%)</td>
<td>9 (82%)</td>
</tr>
<tr>
<td><strong>PD</strong> 12 (48%)</td>
<td>2 (18%)</td>
</tr>
</tbody>
</table>

**Conclusions phase I studies:**

- Encouraging anti-tumor activity in heavily pre-treated patients with MSS mCRC
- Clinical activity seen with monotherapy; further enhanced in combo with atezolizumab
- Safety profile manageable in both monotherapy and in combination

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Data reported by investigators, cutoff: March 3, 2017. \(^a\) Sub-group of the column to the left (N = 25 CEA-TCB + atezolizumab patients, treated at doses 5 - 160 mg). \(^b\) One patient had the confirmatory CT scan on March 23, 2017.

Tabernero J, et al. ASCO 2017, abstract #3002
Emicizumab: Second positive result

Positive read out in adult & pediatric inh patients

- Positive phase III results in inhibitor patients ≥12 years (HAVEN 1) to be presented at ISTH
- Positive phase III interim results in inhibitor pediatrics (HAVEN 2) to be presented at ISTH
- Global filing based on HAVEN1 and HAVEN2 interim results and launch preparations on track
Lampalizumab in geographic atrophy (GA)

High unmet medical need - Phase III read-outs in H2

- GA causes irreversible retinal cell death
- Today, over 5 million people suffer from GA worldwide
### Development activities across the portfolio

**Growth through innovation & strategic LCM**

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<th>Growing the existing business by improving our own Standard of Care</th>
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LCM = life cycle management; RMS = relapsing forms of multiple sclerosis; PPMS = primary progressive multiple sclerosis
Performance update

Portfolio rejuvenation

Resource allocation

Outlook
Comprehensive productivity program in place

<table>
<thead>
<tr>
<th>Strict prioritisation</th>
<th>Process innovation</th>
</tr>
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<tbody>
<tr>
<td><strong>COGS</strong></td>
<td></td>
</tr>
<tr>
<td>Small molecule</td>
<td>Process improvement</td>
</tr>
<tr>
<td>restructuring</td>
<td>Productivity</td>
</tr>
<tr>
<td>Biologics asset</td>
<td>levers</td>
</tr>
<tr>
<td>utilisation</td>
<td></td>
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<tr>
<td><strong>M&amp;D</strong></td>
<td>Commercial</td>
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<td>M&amp;D portfolio</td>
<td>restructuring</td>
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<td>prioritisation</td>
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<td><strong>R&amp;D</strong></td>
<td>Functional</td>
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<tr>
<td>R&amp;D portfolio</td>
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<tr>
<td>prioritisation</td>
<td>programs</td>
</tr>
<tr>
<td></td>
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</tr>
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</table>

Procurement

Shared Service Center
2012 - 2016: Continuous reduction of interest expenses

- 2012: interest expense: CHF 1.43bn, effective interest rate: 5.4%
- 2013: interest expense: CHF 1.08bn, effective interest rate: 5.1%
- 2014: interest expense: CHF 0.95bn, effective interest rate: 4.4%
- 2015: interest expense: CHF 0.89bn, effective interest rate: 3.7%
- 2016: interest expense: CHF 0.71bn, effective interest rate: 2.9%
Performance update

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Outlook
2017: Another important year for our pipeline

Key read-outs

<table>
<thead>
<tr>
<th>2017</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>![APHINITY](Perjeta early BC, Her2+)</td>
<td>![IMpower150](Tecentriq 1L Lung)</td>
<td>![SPECTRI &amp; CHROMA](Lampalizumab GA)</td>
<td>![HAVEN 3](Emicizumab in non-inh.)</td>
</tr>
</tbody>
</table>

Outcome studies are event-driven: timelines may change
Positive outlook

Strong pipeline enabling continuous growth

NME launches
Tecentriq, Venetoclax, Alectinib, Cotellic, Ocrelizumab, Emicizumab, Lampalizumab

Biosimilars
MabThera, Herceptin, Avastin
## 2017 outlook

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Group sales growth¹</td>
<td>Low to mid-single digit</td>
</tr>
<tr>
<td>Core EPS growth¹</td>
<td>Broadly in line with 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
Launch excellence: Get it right the first time—recovery from a poor launch is difficult

For 80% of launches, market share does not vary by over 10% after the first 6 months of launch

Frequency distribution of US market share variation from L+6 to L+24 (percentage of launches)

- Market share remains within 10% range: 83
- Market share increases by more than 10%: 6
- Market share decreases by more than 10%: 11

Example: MS launch price premiums have moderated, but price increases erode value.

(USD per year; launch premiums relative to share-weighted category average in the month prior to launch;)

- **Tysabri**
  - Launch Premium: 59%

- **Gilenya**
  - Launch Premium: 33%

- **Tecfidera**
  - Launch Premium: 1%

- **Glatopa**
  - Launch Premium: -6%

- **Aubagio**
  - Launch Premium: -8%

Weighted Category Average
CAGR: 16%
OCREVUS: Average price for best-in-class drug

Current MS pricing landscape

<table>
<thead>
<tr>
<th>Tafidera Positioning Comparator</th>
<th>Rebi Trial Comparator</th>
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<tr>
<td>$76,833</td>
<td>$81,686</td>
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</table>

<table>
<thead>
<tr>
<th>Tysabri Infused Comparator</th>
<th>Gilenya</th>
</tr>
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<tbody>
<tr>
<td>$75,361</td>
<td>$82,043</td>
</tr>
</tbody>
</table>

Notes:
1. Annual WAC prices range from $63,193 to $82,043.
2. Annual average NET prices range from $51,385 to $69,456.
3. NET price averages were calculated using payer-reported, lives-weighted rebate data collected by Health Strategies Group from commercial health plans.
Alecensa: Positive results in 1L ALK+ NSCLC
ALKi with proven strong activity in the brain

Phase III ALEX

- Second Phase III head-to-head study showed Alecensa was superior to crizotinib in 1L ALK+ lung cancer
- Patients receiving Alecensa lived significantly longer without their disease progressing (PFS)
- Safety profile was consistent with previous studies
- Results to be presented at ASCO

1L lung

- Phase III data (ALEX) to be filed in the US/EU
- Breakthrough therapy designation
- Japanese market share >60%

2L lung

- Positive Phase III study ALUR supports use in chemo/crizotinib failed patients
- EU approval achieved in Q1
- US market share of 50% after 12 months

Alecensa in collaboration with Chugai; NSCLC=non-small cell lung cancer; Xalkori® (crizotinib); PFS=progression free survival; BTD=breakthrough therapy designation
Freeing up resources through productivity programs

**Commercial**

- Resource shift to support launches
- Commercial productivity program

- ~50% Recent launches & pipeline
- ~60% In-market & established

2016 2017

**Product Development**

- Decision making: Putting all projects into portfolio context

- Above median NPV and POL
- Below NPV and POL

**Production**

- Shift from small to large molecule capacity

- Small molecule capacity
- Biologics capacity

**Shared service centres:** Kuala Lumpur, Budapest
Performance update

Portfolio rejuvenation

Outlook
Stable to slightly declining portion of GDP spending allocated to Pharma

Global GDP (% real change per annum):

<table>
<thead>
<tr>
<th>Year</th>
<th>US</th>
<th>EU5</th>
<th>RoW</th>
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<tr>
<td>95</td>
<td>3.2</td>
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<td>96</td>
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<tr>
<td>15</td>
<td>1.5</td>
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</table>

Pharma spend (% of GDP):

- US: 2.1%
- EU5: 1.5%
- RoW: 1.3%

Slight increase – 2002-2008
- US: 2.4%
- EU5: 1.4%
- RoW: 1.3%

Stable – 2009-2015
- US: 2.4%
- EU5: 1.3%
- RoW: 1.2%

Increase partly due to Sovaldi
Relative increase due to drop in GDP

Source: Economist Intelligence Unit, BCG analysis
Innovation driving growth

Oncology as an example

Oncology share in total Pharma spend (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2009</th>
<th>2015</th>
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</table>

Global growth in Oncology spend from 2010 to 2015 (in USD bn)

- NMEs: 19
- Volume: 14
- Price: 5
- LoE: -8
- Total growth: 30

US: Increase by 6.3 bn
Ex-US: Decrease by 1.4 bn

Innovation and volume increase main drivers for oncology spending growth

1. Defined by spend on L1 (ANTINEOPLASTICS) in ATC classification system
2. Hospital market only
3. Non retail market only
Source: IMS MIDAS; Global Oncology Trend Report (A Review of 2015 and Outlook to 2020); BCG analysis
Room for further growth

Oncology spending not reflected in disease burden

Oncology share of total pharma spending, 2005 (%)

Oncology share of total pharma spending, 2010 (%)

Oncology share of total pharma spending, 2015 (%)

Oncology share of overall DALYs, 2004 (%)

Oncology share of overall DALYs, 2012 (%)

Source: WHO for "DALYs 2004 and 2012"; IMS MIDAS for "Pharma spending" and "Oncology spending"