6.C Board practices

Corporate governance

Corporate governance overview

Our corporate governance framework consists of rules that support sustainable financial performance and long-term value creation for our shareholders and that are aligned with our Values and Behaviors (www.novartis.com/investors/company-overview/corporate-governance). Developments are continuously monitored and result in enhanced principles, processes and disclosures in line with our commitment to maintaining the highest standards.

Laws and regulations
Novartis AG is subject to and compliant with the laws and regulations of Switzerland (in particular, Swiss company and securities laws, SIX Swiss Exchange rules and the Swiss Code of Best Practice for Corporate Governance) and the securities laws of the United States, including New York Stock Exchange (NYSE) rules, as applicable to foreign private issuers of securities. The NYSE listing standards on corporate governance require Novartis AG to describe any material ways in which its corporate governance practices differ from those of domestic listed US companies. These differences are:

- Novartis AG shareholders do not receive written reports directly from Board committees.
- External auditors are appointed by shareholders at the Annual General Meeting of Shareholders (AGM), as opposed to being appointed by the Audit and Compliance Committee.
- While shareholders cannot vote on all equity compensation plans, they are entitled to hold separate, yearly binding votes on Board and Executive Committee compensation.
- The Board has set up a separate Risk Committee that is responsible for business risk oversight, as opposed to delegating this responsibility to the Audit and Compliance Committee.
- The full Board is responsible for overseeing the performance evaluation of the Board and Executive Committee.
- The full Board is responsible for setting objectives relevant to the CEO’s compensation and for evaluating his performance.
Board and Executive Committee compensation

Information on Board and Executive Committee compensation is outlined in our Compensation Report (see “—Item 6.B Compensation”). Please also refer to articles 29-35 of the Articles of Incorporation (www.novartis.com/investors/company-overview/corporate-governance) stipulating the Board and Executive Committee compensation provisions. According to the general compensation principles as outlined in the Articles of Incorporation, the compensation of the non-executive Board members comprises fixed compensation elements only (no Company contributions to any pension plan, no performance-related elements and no financial instruments).

Compensation to Executive Committee members comprises fixed and variable, performance-related compensation. Fixed compensation is comprised of the base salary and may include other elements and benefits such as contributions to pension plans. Variable compensation may comprise short-term and long-term compensation elements. If the maximum aggregate amount of compensation already approved by the AGM is not sufficient to cover the compensation of newly appointed or promoted Executive Committee members, Novartis may pay out compensation, in a total amount up to 40% of the total maximum aggregate amount last approved for the Executive Committee per compensation period, to newly appointed or promoted Executive Committee members.
Our Group structure and shareholders

Our Group structure

Novartis AG and Group companies

Novartis AG, with its registered office at Lichtstrasse 35, CH-4056 Basel, Switzerland, is a corporation organized under Swiss law that has issued registered shares.

As the holding company, Novartis AG owns or controls directly or indirectly all entities worldwide belonging to the Novartis Group and conducting its business operations. The principal Novartis subsidiaries and associated companies are listed in Note 31 to the Group’s consolidated financial statements.

Divisions

The Novartis business is divided on a worldwide basis into three operating divisions: Innovative Medicines, with the two business units Novartis Pharmaceuticals and Novartis Oncology; Sandoz (generics); and Alcon (eye care). These businesses are supported by a number of global organizations, including the Novartis Institutes for BioMedical Research (NIBR), which focuses on discovering new drugs; the Global Drug Development organization, which oversees the clinical development of new medicines; and Novartis Operations, which includes Novartis Technical Operations (the global manufacturing organization) and Novartis Business Services (which consolidates support services across Novartis). On June 29, 2018, Novartis announced plans to separate the Alcon business from the rest of Novartis by means of a spin-off subject to an approval by the shareholders at the AGM on February 28, 2019.

Majority holdings in publicly traded Group companies

The Novartis Group owns 70.7% of Novartis India Ltd., with its registered office in Mumbai, India, and listed on the Bombay Stock Exchange (ISIN INE234A01025, symbol: HCBA). The total market value of the 29.3% free float of Novartis India Ltd. was USD 74.7 million at December 31, 2018, using the quoted market share price at year-end. Applying this share price to all the shares of the company, the market capitalization of the whole company was USD 254.8 million, and that of the shares owned by Novartis was USD 180.1 million.

Significant minority shareholding owned by the Novartis Group

The Novartis Group owns 33.3% of the bearer shares of Roche Holding AG, with its registered office in Basel, Switzerland, and listed on the SIX Swiss Exchange (ISIN CH0012032113, symbol: RO). The market value of the Group’s interest in Roche Holding AG, as of December 31, 2018, was USD 12.9 billion. The total market value of Roche Holding AG was USD 212.2 billion. Novartis does not exercise control over Roche Holding AG, which is independently governed, managed and operated.

Our shareholders

Significant shareholders

According to the Novartis Share Register, as of December 31, 2018, the following registered shareholders (including nominees and the ADS depositary) held more than 2% of the total share capital of Novartis AG, with the right to vote all their Novartis shares based on an exemption granted by the Board (see “—Item 6.C Board practices—Shareholder participation rights—Voting rights, restrictions and representation”):1

• Shareholders: Novartis Foundation for Employee Participation, with its registered office in Basel, holding 2.3%; Emasan AG, with its registered office in Basel, holding 3.5%; and UBS Fund Management (Switzerland) AG, with its registered office in Basel, holding 2.2%


• ADS depositary: JPMorgan Chase Bank, N.A., New York, holding 13.3%

1 Excluding 4.6% of the share capital held as treasury shares by Novartis AG or its fully owned subsidiaries
According to a disclosure notification filed with Novartis AG, Norges Bank (Central Bank of Norway), Oslo, held 2.1% of the share capital of Novartis AG but was not registered in the Novartis Share Register as of December 31, 2018.

According to disclosure notifications filed with Novartis AG and the SIX Swiss Exchange, each of the following shareholders held between 3% and 5% but was not registered or registered with less than 2% of the share capital of Novartis AG as of December 31, 2018:
- BlackRock Inc., New York
- The Capital Group Companies Inc., Los Angeles

Disclosure notifications pertaining to shareholdings in Novartis AG that were filed with Novartis AG and the SIX Swiss Exchange are published on the latter’s electronic publication platform and can be accessed via: www.six-exchange-regulation.com/en/home/publications/significant-shareholders.html.

### Cross shareholdings
Novartis AG has no cross shareholdings in excess of 5% of capital, or voting rights with any other company.

### Distribution of Novartis shares
The information in the following tables relates only to registered shareholders and does not include holders of unregistered shares. Also, the information provided in the tables cannot be assumed to represent the entire Novartis AG investor base because nominees and JPMorgan Chase Bank, N.A., as ADS depositary, are registered as shareholders for a large number of beneficial owners.

As of December 31, 2018, Novartis AG had approximately 163,000 registered shareholders.

#### Number of shares held

<table>
<thead>
<tr>
<th>As of December 31, 2018</th>
<th>Number of registered shareholders</th>
<th>% of registered share capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–100</td>
<td>25,193</td>
<td>0.06</td>
</tr>
<tr>
<td>101–1,000</td>
<td>98,629</td>
<td>1.61</td>
</tr>
<tr>
<td>1,001–10,000</td>
<td>35,458</td>
<td>3.86</td>
</tr>
<tr>
<td>10,001–100,000</td>
<td>3,130</td>
<td>3.18</td>
</tr>
<tr>
<td>100,001–1,000,000</td>
<td>4,58</td>
<td>4.51</td>
</tr>
<tr>
<td>1,000,001–5,000,000</td>
<td>62</td>
<td>4.89</td>
</tr>
<tr>
<td>5,000,001 or more</td>
<td>30</td>
<td>50.22</td>
</tr>
<tr>
<td>Total registered shares</td>
<td>162,960</td>
<td>69.23</td>
</tr>
<tr>
<td>Unregistered shares</td>
<td>30,77</td>
<td></td>
</tr>
</tbody>
</table>

1 Including significant registered shareholders as listed above

#### Registered shareholders by type

<table>
<thead>
<tr>
<th>As of December 31, 2018</th>
<th>Shareholders in %</th>
<th>Shares in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual shareholders</td>
<td>96.36</td>
<td>12.87</td>
</tr>
<tr>
<td>Legal entities 1</td>
<td>3.58</td>
<td>32.58</td>
</tr>
<tr>
<td>Nominees, fiduciaries and ADS depositary</td>
<td>0.06</td>
<td>54.55</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

1 Excluding 4.6% of the share capital held as treasury shares by Novartis AG or its fully owned subsidiaries

#### Registered shareholders by country

<table>
<thead>
<tr>
<th>As of December 31, 2018</th>
<th>Shareholders in %</th>
<th>Shares in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>0.12</td>
<td>1.23</td>
</tr>
<tr>
<td>France</td>
<td>2.04</td>
<td>0.29</td>
</tr>
<tr>
<td>Germany</td>
<td>5.39</td>
<td>1.83</td>
</tr>
<tr>
<td>Japan</td>
<td>0.19</td>
<td>0.73</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>0.05</td>
<td>0.53</td>
</tr>
<tr>
<td>Switzerland 1</td>
<td>88.17</td>
<td>42.11</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.52</td>
<td>24.64</td>
</tr>
<tr>
<td>United States</td>
<td>0.36</td>
<td>26.81</td>
</tr>
<tr>
<td>Other countries</td>
<td>3.16</td>
<td>1.83</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Registered shares held by nominees are shown in the country where the company/affiliate entered in the Novartis Share Register as shareholder has its registered seat.

1 Excluding 4.6% of the share capital held as treasury shares by Novartis AG or its fully owned subsidiaries
Our capital structure

Our share capital

As of December 31, 2018, the share capital of Novartis AG is CHF 1 275 312 410 fully paid-in and divided into 2 550 624 820 registered shares (Novartis share). Each Novartis share has a nominal value of CHF 0.50. Novartis shares are listed on the SIX Swiss Exchange (ISIN CH0012005267, symbol: NOVN) and on the NYSE in the form of American Depositary Receipts (ADRs) representing Novartis American Depositary Shares (ADSs) (ISIN US66987V1098, symbol: NVS).

Authorized and conditional share capital

No authorized and conditional capital exists as of December 31, 2018.

Changes in capital

Over the past three years, the share capital of Novartis AG changed as follows:

By completing the sixth share repurchase program in 2016, Novartis AG reduced its share capital by CHF 24.9 million (from CHF 1 338 496 500 to CHF 1 313 557 410) by canceling 49 878 180 Novartis shares repurchased on the second trading line during 2015 (at an average price of CHF 93.24 per Novartis share). At the 2016 AGM, shareholders approved the seventh share repurchase program authorizing the Board to repurchase Novartis shares up to a maximum of CHF 10 billion. In 2017, Novartis AG reduced its share capital by CHF 5.1 million (from CHF 1 313 557 410 to CHF 1 308 422 410) by canceling 10 270 000 Novartis shares repurchased on the second trading line during 2016 (at an average price of CHF 74.67 per Novartis share). In 2018, Novartis AG reduced its share capital by CHF 33.11 million (from CHF 1 308 422 410 to CHF 1 275 312 410) by canceling 66 220 000 Novartis shares repurchased on the second trading line during 2017 (at an average price of CHF 78.34 per Novartis share). In 2018, a total of 23.3 million Novartis shares were purchased at an average price of CHF 79.08 per Novartis share. The Board will propose to the shareholders at the 2019 AGM to cancel the Novartis shares repurchased in 2018 and to approve the eighth repurchase program, authorizing the Board to repurchase Novartis shares up to a maximum of CHF 10 billion until the 2022 AGM.

Capital changes

<table>
<thead>
<tr>
<th>Year</th>
<th>As of Jan 1</th>
<th>Changes in shares</th>
<th>As of Dec 31</th>
<th>Changes in CHF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>2 676 993 000</td>
<td>– 49 878 180</td>
<td>2 627 114 820</td>
<td>– 24 939 090</td>
</tr>
<tr>
<td>2017</td>
<td>2 627 114 820</td>
<td>– 10 270 000</td>
<td>2 616 844 820</td>
<td>– 5 135 000</td>
</tr>
<tr>
<td>2018</td>
<td>2 616 844 820</td>
<td>– 66 220 000</td>
<td>2 550 624 820</td>
<td>– 33 110 000</td>
</tr>
</tbody>
</table>

A table with additional information on changes in the Novartis AG share capital can be found in Note 8 to the financial statements of Novartis AG.

Shares, participation certificates, non-voting equity securities, profit-sharing certificates

Novartis shares are issued as uncertificated securities (in the sense of the Swiss Code of Obligations) and as book entry securities (in terms of the Swiss Act on Intermediated Securities). All Novartis shares have equal voting rights and carry equal entitlements to dividends. No participation certificates, non-voting equity securities (Genussscheine) or profit-sharing certificates have been issued.

Transferability and nominee registration

No transferability restrictions are imposed on Novartis shares. The registration of shareholders in the Novartis Share Register or in the ADR register kept by JPMorgan Chase Bank, N.A., does not affect the tradability of Novartis shares or ADRs.

The Articles of Incorporation provide that no nominee shall be registered with the right to vote for more than 0.5% of the registered share capital (for registration of shareholders, see “—Item 6.C Board practices—Shareholder participation rights—Voting rights, restrictions and representation”). The Board may, upon request, grant an exemption from this restriction if the nominee discloses the names, addresses and number of shares of the individuals for whose account it holds 0.5% or more of the registered share capital. Exemptions are in force for the nominees listed in “—Item 6.C Board practices—Our Group structure and shareholders—Our shareholders—Significant shareholders,” and for the nominee Citibank, London, which in 2015 requested an exemption, but as of December 31, 2018, was not registered in the Novartis Share Register.

The same restrictions indirectly apply to holders of ADRs.

Shareholders, ADR holders, or nominees who are linked to each other or who act in concert to circumvent registration restrictions are treated as one person or nominee for the purposes of the restrictions on registration. The registration restrictions may be changed by resolution of the General Meeting of Shareholders (General Meeting), with approval of at least two-thirds of the votes represented at the meeting (see “—Item 6.C Board practices—Shareholder participation rights—Statutory quorums”).

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Convertible securities and options

Novartis AG has not issued convertible or exchangeable bonds, warrants, options or other securities granting rights to Novartis shares, other than options (or similar instruments such as stock appreciation rights) granted under or in connection with equity-based participation plans of Novartis associates. Novartis AG does not grant any new stock options under these plans.

Key Novartis share data

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issued shares</td>
<td>2 550 624 820</td>
<td>2 616 844 820</td>
<td>2 627 114 820</td>
</tr>
<tr>
<td>Treasury shares 1</td>
<td>239 453 391</td>
<td>299 388 321</td>
<td>253 055 807</td>
</tr>
<tr>
<td>Outstanding shares at December 31</td>
<td>2 311 171 429</td>
<td>2 317 456 499</td>
<td>2 374 059 013</td>
</tr>
<tr>
<td>Weighted average number of shares outstanding</td>
<td>2 319 322 369</td>
<td>2 345 783 843</td>
<td>2 378 474 555</td>
</tr>
</tbody>
</table>

1 Approximately 122 million treasury shares (2017: 131 million; 2016: 135 million) are held in Novartis entities that restrict their availability for use.

Per-share information1

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic earnings per share (USD)</td>
<td>5.44</td>
<td>3.28</td>
<td>2.82</td>
</tr>
<tr>
<td>Diluted earnings per share (USD)</td>
<td>5.38</td>
<td>3.25</td>
<td>2.80</td>
</tr>
<tr>
<td>Operating cash flow (USD)</td>
<td>6.15</td>
<td>5.38</td>
<td>4.82</td>
</tr>
<tr>
<td>Year-end equity for Novartis AG shareholders (USD)</td>
<td>34.01</td>
<td>32.00</td>
<td>32.46</td>
</tr>
<tr>
<td>Dividend (CHF)2</td>
<td>2.85</td>
<td>2.80</td>
<td>2.75</td>
</tr>
</tbody>
</table>

1 Calculated on the weighted average number of shares outstanding, except year-end equity
2 2018: proposal to shareholders for approval at the Annual General Meeting on February 28, 2019

Key ratios – December 31

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price/earnings ratio1</td>
<td>15.7</td>
<td>25.7</td>
<td>25.7</td>
</tr>
<tr>
<td>Enterprise value/EBITDA</td>
<td>14</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Dividend yield (%)1</td>
<td>3.4</td>
<td>3.4</td>
<td>3.7</td>
</tr>
</tbody>
</table>

1 Based on the Novartis share price at December 31 of each year

Share price (CHF)

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year-end share price</td>
<td>84.04</td>
<td>82.40</td>
<td>74.30</td>
</tr>
<tr>
<td>High1</td>
<td>91.84</td>
<td>85.15</td>
<td>86.45</td>
</tr>
<tr>
<td>Low1</td>
<td>72.42</td>
<td>69.55</td>
<td>68.15</td>
</tr>
<tr>
<td>Year-end market capitalization (USD billions)2</td>
<td>197.0</td>
<td>195.5</td>
<td>172.0</td>
</tr>
<tr>
<td>Year-end market capitalization (CHF billions)2</td>
<td>194.2</td>
<td>191.0</td>
<td>175.9</td>
</tr>
</tbody>
</table>

1 Based on the daily closing prices
2 Market capitalization is calculated based on the number of shares outstanding (excluding treasury shares). Market capitalization in USD is based on the market capitalization in CHF converted at the year-end CHF/USD exchange rate.

Key data on ADRs issued in the US

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year-end ADR price (USD)</td>
<td>85.81</td>
<td>83.96</td>
<td>72.84</td>
</tr>
<tr>
<td>High1</td>
<td>93.91</td>
<td>86.65</td>
<td>86.21</td>
</tr>
<tr>
<td>Low1</td>
<td>72.44</td>
<td>70.03</td>
<td>67.59</td>
</tr>
<tr>
<td>Number of ADRs outstanding2</td>
<td>338 641 387</td>
<td>320 833 039</td>
<td>315 349 314</td>
</tr>
</tbody>
</table>

1 Based on the daily closing prices
2 The depositary, JPMorgan Chase Bank, N.A., holds one Novartis AG share for every ADR issued.
Our Board of Directors

Composition of the Board of Directors and its committees (as per December 31, 2018)

**Chairman:** J. Reinhardt  
**Vice Chairman:** E. Vanni

<table>
<thead>
<tr>
<th>Audit and Compliance Committee</th>
<th>Compensation Committee</th>
<th>Governance, Nomination and Corporate Responsibilities Committee</th>
<th>Research &amp; Development Committee</th>
<th>Risk Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Doherty (Chair)</td>
<td>E. Vanni (Chair)</td>
<td>A. von Planta (Chair)</td>
<td>J. Reinhardt (Chair)</td>
<td>S. Datar (Chair)</td>
</tr>
<tr>
<td>A. von Planta</td>
<td>A. Fudge</td>
<td>A. Fudge</td>
<td>D. Azar</td>
<td>E. Doherty</td>
</tr>
<tr>
<td>E. Vanni</td>
<td>W. Winters</td>
<td>C. Sawyers</td>
<td>F. van Houten</td>
<td>A. Fudge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E. Vanni</td>
<td>C. Sawyers</td>
<td>A. von Planta</td>
</tr>
</tbody>
</table>

**Election and term of office**

At the General Meeting, Board members (including the Chairman) and Compensation Committee members are individually elected or re-elected by shareholders for a term of one year.

There is no mandatory term limit for Board members, enabling the Company to benefit from the insight and knowledge that long-serving Board members have developed about the Company’s operations and practices. However, Board members must retire after reaching age 70. Under special circumstances, shareholders may grant an exemption from this rule and re-elect a Board member for additional terms of office.

### First election at AGM

<table>
<thead>
<tr>
<th>Name</th>
<th>Nationality</th>
<th>Year of birth</th>
<th>First election at AGM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joerg Reinhardt, Ph.D.</td>
<td>D</td>
<td>1956</td>
<td>2013</td>
</tr>
<tr>
<td>Enrico Vanni, Ph.D.</td>
<td>CH</td>
<td>1951</td>
<td>2011</td>
</tr>
<tr>
<td>Nancy C. Andrews, M.D., Ph.D.</td>
<td>US/CH</td>
<td>1958</td>
<td>2015</td>
</tr>
<tr>
<td>Dimitri Azar, M.D.</td>
<td>US</td>
<td>1959</td>
<td>2012</td>
</tr>
<tr>
<td>Ton Buechner</td>
<td>NLD/CH</td>
<td>1965</td>
<td>2016</td>
</tr>
<tr>
<td>Srikant Datar, Ph.D.</td>
<td>US</td>
<td>1953</td>
<td>2003</td>
</tr>
<tr>
<td>Elizabeth Doherty</td>
<td>GB</td>
<td>1957</td>
<td>2016</td>
</tr>
<tr>
<td>Ann Fudge</td>
<td>US</td>
<td>1951</td>
<td>2006</td>
</tr>
<tr>
<td>Frans van Houten</td>
<td>NLD</td>
<td>1960</td>
<td>2017</td>
</tr>
<tr>
<td>Andreas von Planta, Ph.D.</td>
<td>CH</td>
<td>1955</td>
<td>2006</td>
</tr>
<tr>
<td>Charles L. Sawyers, M.D.</td>
<td>US</td>
<td>1959</td>
<td>2013</td>
</tr>
<tr>
<td>William T. Winters</td>
<td>GB/US</td>
<td>1961</td>
<td>2013</td>
</tr>
</tbody>
</table>
Board profile

Board composition and profile of individual Board members

The composition of the Board aligns with our status as a listed company as well as our business portfolio, geographic reach and culture. To ensure appropriate strategic oversight, we seek Board members who have diverse skills and experience. Collectively, the Board must have background and expertise in one or several of the following areas:

• Leadership, senior management/executive-level experience
• Medicine and healthcare
• Finance and accounting
• Law
• Engineering and technology
• Marketing

Diversity is critical to Board effectiveness and an important criterion for the Governance, Nomination and Corporate Responsibilities Committee (GNCRC) when identifying new Board member candidates.

Board members’ biographies (see “—Item 6.C Board practices—Our Board of Directors—Board of Directors”) highlight the specific qualifications that led the Board to conclude that members are qualified to serve on the Board and will add value.

Board members should also have the following personal qualities:

• Interact with other Board members to build an effective and complementary Board
• Establish trusting relationships
• Apply independence of thought and judgment
• Be challenging but supportive in the boardroom
• Influence without creating conflict by applying a constructive, non-confrontational style
• Listen well and offer advice based on sound judgment
• Be able and willing to commit adequate time to Board and committee responsibilities
• Be open to personal feedback and seek to be responsive
• Do not have existing board memberships or hold other positions that could lead to a permanent conflict of interest
• Understand and respect the boundaries of the role, leaving the operational management of the Company to the CEO and the Executive Committee
**Board succession planning**

The Chairman, supported by the GNCRC, ensures effective succession plans for the Board, the CEO and the Executive Committee. These plans are discussed by the Board in private meetings without management (the succession plan for the Chairman is discussed in a meeting without him). A search for a new Board member is launched – normally with the support of a professional executive search company – based on the established target profile. Candidates are interviewed by the Chairman and other Board members, and evaluated by the GNCRC. The GNCRC then makes a recommendation to the full Board, and the Board ultimately decides who should be proposed to shareholders for election at the upcoming AGM.

**Role of the Board and its committees**

The Board is responsible for the overall direction and oversight of management, and holds the ultimate decision-making authority for Novartis AG, with the exception of decisions reserved for shareholders.

The Board has delegated certain of its duties and responsibilities to its five committees led by a Board-elected Chairman, as set out in their written charter (www.novartis.com/sites/www.novartis.com/files/regulations-en.pdf). In some cases, these responsibilities are of an advisory or preparatory nature (A/P). In other cases, the committee has decision-making power that is subject to final Board approval (FBA), or the responsibilities have been fully delegated to the committee (FD). The committees enable the Board to work in an efficient and effective manner, ensuring a thorough review and discussion of issues while giving the Board more time for deliberation and decision-making on other matters. Moreover, committees ensure that only Board members who are independent oversee audit and compliance, governance and compensation – as only independent Board members are members of the respective committees.

Any Board member may request a Board or committee meeting and the inclusion of an agenda item. Before meetings, Board members receive materials to help them prepare the discussions and decision-making.
### Board of Directors

The primary responsibilities of the Board of Directors include:

- Setting the strategic direction of the Group
- Appointing, overseeing and dismissing key executives, and planning their succession
- Approving transactions and investments of fundamental importance to Novartis and all in excess of USD 500 million
- Determining the organizational structure and governance of the Group
- Determining and overseeing financial planning, accounting, reporting and controlling
- Approving annual financial statements and corresponding financial results releases

<table>
<thead>
<tr>
<th>Responsibilities</th>
<th>Members</th>
<th>Number of meetings held in 2018/ approximate average duration (hrs) of each meeting/ attendance</th>
<th>Documents/ link</th>
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<tbody>
<tr>
<td></td>
<td>Joerg Reinhardt¹</td>
<td>12/6:15</td>
<td>Articles of Incorporation of Novartis AG</td>
</tr>
<tr>
<td></td>
<td>Enrico Vanni</td>
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<td>Regulations of the Board of Directors. its Committees and the Executive Committee of Novartis AG (Board regulations)</td>
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<tr>
<td></td>
<td>Dimitri Azar</td>
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<td>Srikant Datar</td>
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<td></td>
<td>Elizabeth Doherty</td>
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<td>Ann Fudge</td>
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<td>Frans van Houten</td>
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<td>Andreas von Planta</td>
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<td>Charles L. Sawyers</td>
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<td>William T. Winters</td>
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</table>

1 Chairman

### Audit and Compliance Committee

The primary responsibilities of this committee include:

- Supervising external auditors (FD)** and selecting and nominating external auditors for election by the meeting of shareholders (FBA)**
- Overseeing internal auditors (FD)**
- Overseeing accounting policies, financial controls, and compliance with accounting and internal control standards (FD)**
- Approving quarterly financial statements and financial results releases (FBA)**
- Overseeing internal control and compliance processes and procedures (FD)**
- Overseeing compliance with laws, and external and internal regulations (FD)**

The Audit and Compliance Committee has the authority to retain external consultants and other advisors.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>Elizabeth Doherty¹,²</td>
<td>7/2:45</td>
<td>Charter of the Audit and Compliance Committee</td>
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<td></td>
<td>Ton Buechner³</td>
<td>5</td>
<td><a href="http://www.novartis.com/">www.novartis.com/</a> investors/company-overview/corporate-governance</td>
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<td>Srikant Datar²</td>
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<td>Andreas von Planta</td>
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<td>Enrico Vanni</td>
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¹ ACC member after 2018 AGM

### Compensation Committee

The primary responsibilities of this committee include:

- Designing, reviewing and recommending to the Board the compensation policies and programs (FBA)**
- Advising the Board on the compensation of Board members and the CEO (A/P)*
- Deciding on the compensation of Executive Committee members (FD)**
- Preparing the Compensation Report and submitting it to the Board for approval (FBA)**

The Compensation Committee has the authority to retain external consultants and other advisors.

<table>
<thead>
<tr>
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<tr>
<td></td>
<td>Enrico Vanni¹</td>
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<td>Charter of the Compensation Committee</td>
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<td>Srikant Datar</td>
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<td><a href="http://www.novartis.com/">www.novartis.com/</a> investors/company-overview/corporate-governance</td>
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<td>William T. Winters</td>
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</tbody>
</table>

¹ Chairman

² Audit Committee Financial Expert

3 ACC member after 2018 AGM

* A/P = advisory or preparatory task

** FD = fully delegated task

*** FBA = task subject to final Board approval
### Governance, Nomination and Corporate Responsibilities Committee

The primary responsibilities of this committee include:
- Designing, reviewing and recommending to the Board corporate governance principles (FBA)**
- Identifying candidates for election as Board members (FBA)**
- Assessing existing Board members and recommending to the Board whether they should stand for re-election (FBA)**
- Preparing and reviewing the succession plan for the CEO (FBA)**
- Developing and reviewing an onboarding program for new Board members, and an ongoing education plan for existing Board members (FD)**
- Reviewing on a regular basis the Articles of Incorporation, with a view to reinforcing shareholder rights (FD)**
- Reviewing on a regular basis the composition and size of the Board and its committees (FBA)**
- Reviewing annually the independence status of each Board member (FBA)**
- Reviewing directorships and agreements of Board members for conflicts of interest, and dealing with conflicts of interest (FD)**
- Overseeing the Company's strategy and governance on corporate responsibility (FBA)**

The Governance, Nomination and Corporate Responsibilities Committee has the authority to retain external consultants and other advisors.

### Research & Development Committee

The primary responsibilities of this committee include:
- Monitoring research and development, and bringing recommendations to the Board (FBA)**
- Assisting the Board with oversight and evaluation related to research and development (FD)**
- Informing the Board on a periodic basis about the research and development strategy, the effectiveness and competitiveness of the research and development function, emerging scientific trends and activities critical to the success of research and development, and the pipeline (A/P)*
- Advising the Board on scientific, technological, and research and development matters (A/P)*
- Providing counsel and know-how to management in the area of research and development (A/P)*
- Reviewing such other matters in relation to the Company’s research and development as the committee may, in its own discretion, deem desirable in connection with its responsibilities (A/P)*

The Research & Development Committee has the authority to retain external consultants and other advisors.

### Risk Committee

The primary responsibilities of this committee include:
- Ensuring that Novartis has implemented an appropriate and effective risk management system and process (FBA)**
- Ensuring that all necessary steps are taken to foster a culture of risk-adjusted decision-making without constraining reasonable risk-taking and innovation (FBA)**
- Approving guidelines and reviewing policies and processes (FBA)**
- Reviewing with management, internal auditors and external auditors the identification, prioritization and management of risks; the accountabilities and roles of the functions involved in risk management; the risk portfolio; and the related actions implemented by management (FBA)**

The Risk Committee has the authority to retain external consultants and other advisors.

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1 Chairman

* A/P = advisory or preparatory task

** FD = fully delegated task

*** FBA = task subject to final Board approval
Chairman

Joerg Reinhardt has been the independent, non-executive Chairman since August 1, 2013. He has both industry and Novartis experience. As independent Chairman, he leads the Board to represent the interests of all stakeholders. The independent chairmanship also ensures an appropriate balance of power between the Board and the Executive Committee. In this role, Mr. Reinhardt:

• Provides leadership to the Board
• Supports and mentors the CEO
• Ensures that the Board and its committees work effectively
• Sets the agenda, style and tone of Board discussions, promoting constructive dialogue and effective decision-making
• Supported by the GNCRC, ensures that all Board committees are properly established, composed and operated
• Supported by the GNCRC, ensures effective succession plans for the Board and the Executive Committee
• Ensures onboarding programs for new Board members, and continuing education and specialization for all Board members
• Ensures that the Board’s performance is annually evaluated
• Promotes effective relationships and communication between Board and Executive Committee members
• Ensures effective communication with the Company’s shareholders

Vice Chairman

Enrico Vanni has been the independent, non-executive Vice Chairman since February 22, 2013. In this role, Mr. Vanni:

• Leads the Board in case and as long as the Chairman is incapacitated
• Chairs the sessions of independent Board members, and leads independent Board members if and as long as the Chairman is not independent
• Leads the yearly session of the Board members evaluating the performance of the Chairman, during which the Chairman is not present

No separate meetings of the independent Board members were held in 2018.

Honorary Chairmen

Dr. Alex Krauer and Dr. Daniel Vasella have been appointed Honorary Chairmen in recognition of their significant achievements on behalf of Novartis. They are not provided with Board documents and do not attend Board meetings.

Board meetings

Subject to additional special meetings, the Board and Board committee meetings take place in January, April, June, August, October and December. Typically, these meetings last two days, with the first day allocated to Board committee meetings, and the second day allocated to the meeting of the full Board.

Key activities of our Board and committees in 2018

The following overview summarizes Board and committee activities over the course of the year. Although by no means exhaustive, the lists below provide a flavor of the discussions and debates held, and detail some of the key topics addressed.

Board of Directors:
In 2018, the Board focused on strengthening the operations of Novartis, expanding our therapeutic platforms, and accelerating our push into the data and digital healthcare space to increase our ability to develop breakthrough therapies and improve patient outcomes. The Board also discussed the Alcon spin-off, our investments in breakthrough technologies (including the acquisitions of Endocyte, Inc., AveXis, Inc. and Advanced Accelerator Applications S.A.), as well as the divestments of a part of the US-based generics business of Sandoz and the selling of our remaining consumer healthcare stake to joint venture partner GlaxoSmithKline. Additional topics were the restructuring of our technical operations and business services to become a leaner and more agile organization, our corporate culture as a key driver for the Company, and an evaluation of the impact of external perspectives on our strategy. Topics addressed during private meetings included Board self-evaluation and the performance assessment of the Executive Committee members, as well as CEO and Executive Committee succession planning.

Audit and Compliance Committee:
• Evaluated the impact of adopting new reporting requirements and guidelines
• Focused on acquisitions as well as divestments
• Evaluated the performance of the external auditors
• Discussed the reorganization of Internal Audit

Compensation Committee:
• Decided on compensation related to the changes in Executive Committee membership during the year
• Reviewed the variable compensation programs for Executive Committee members, including financial metrics
• Discussed compensation principles and governance regarding the proposed Alcon spin-off
• Reviewed shareholder feedback from the roadshows
• Discussed potential enhanced disclosures in the 2018 Compensation Report

Governance, Nomination and Corporate Responsibilities Committee:
• Reviewed our corporate responsibility activities
• Reviewed the composition of the Board and its committees
• Evaluated the AGM
• Reflected on the role of companies in society
• Discussed corporate governance developments
• Discussed corporate responsibility reporting changes
Research & Development Committee:
- Discussed the Sandoz biosimilar portfolio
- Discussed Global Drug Development clinical functions
- Reviewed an external assessment of the portfolio and productivity of Novartis research and development
- Discussed technical research and development functions

Risk Committee:
- Assessed main risks and mitigations in Innovative Medicines, NIBR and IT
- Discussed data privacy
- Analyzed pricing
- Evaluated risks and opportunities associated with the digital status and strategy
- Reviewed status and measures regarding cybersecurity
- Reviewed the Enterprise Risk Management Report

Independence of Board members

All Board members are non-executive and independent. The independence of Board members is a key topic in corporate governance. An independent Board member is one who is independent of management and has no business or relationship that could materially interfere with the exercise of objective, unfettered and independent judgment. Only with a majority of Board members being independent can the Board fulfill its obligation to represent the interests of shareholders, being accountable to them and creating sustainable value through the effective governance of Novartis. Accordingly, Novartis established independence criteria based on international best practice standards:


- The majority of Board members and any member of the Audit and Compliance Committee, the Compensation Committee, and the GNCRC must meet the Company’s independence criteria. These include, inter alia, (i) a Board member not having received direct compensation of more than USD 120 000 per year from Novartis, except for dividends or Board compensation, within the last three years; (ii) a Board member not having been an employee of Novartis within the last three years; (iii) a family member not having been an executive officer of Novartis within the last three years; (iv) a Board member or family member not being employed by the external auditor of Novartis; (v) a Board member or family member not being a board member, employee or 10% shareholder of an enterprise that has made payments to, or received payments from, Novartis in excess of the greater of USD 1 million or 2% of that enterprise’s gross revenues. For the Audit and Compliance Committee and the Compensation Committee members, even stricter rules apply.
- In addition, Board members are bound by the Novartis Conflict of Interest Policy, which prevents a Board member’s potential personal interests from influencing the decision-making of the Board.

- The GNCRC annually submits to the Board a proposal concerning the determination of the Board members’ independence. For this assessment, the committee considers all relevant facts and circumstances of which it is aware – not only the explicit formal independence criteria. This includes an assessment of whether a Board member is truly independent, in character and judgment, from any member of senior management and from any of his/her current or former colleagues.

Relationship of non-executive Board members with Novartis

No Board member is or was a member of the management of Novartis AG or of any other Novartis Group company in the last three financial years up to December 31, 2018. There are no significant business relationships of any Board member with Novartis AG or with any other Novartis Group company.

Mandates outside the Novartis Group

According to article 34 of the Articles of Incorporation (www.novartis.com/investors/company-overview/corporate-governance), no Board member may hold more than 10 additional mandates in other companies, of which no more than four shall be in other listed companies. Chairmanships of the boards of directors of other listed companies count as two mandates. Each of these mandates is subject to Board approval.

The following mandates are not subject to these limitations:

a) Mandates in companies that are controlled by Novartis AG
b) Mandates that a Board member holds at the request of Novartis AG or companies controlled by it. No Board member shall hold more than five such mandates.
c) Mandates in associations, charitable organizations, foundations, trusts and employee welfare foundations. No Board member may hold more than 10 such mandates.

"Mandates" means those in the supreme governing body of a legal entity that is required to be registered in the commercial register or a comparable foreign register. Mandates in different legal entities that are under joint control are deemed one mandate. The Board may issue regulations that determine additional restrictions, taking into account the position of the respective member.

Loans and credits

No loans or credits are granted to Board members.
Board performance and effectiveness evaluation

Annually, the Board conducts a review to evaluate its performance, the performance of its committees, and the performance of each Board member. This review covers topics including Board composition, purpose, scope and responsibilities, Board processes and governance; Board meetings and pre-reading material; and team effectiveness, leadership and culture.

As part of this process, each Board member completes a questionnaire, which lays the groundwork for a qualitative review led by the Chairman. The Chairman of the Board and the committees each lead a qualitative review with their colleagues and then with the entire Board. Also, the Board, without its Chairman, discusses the performance of the Chairman. Any suggestion for improvement is recorded, and actions are agreed upon. The results of the 2018 review were discussed at the December 2018 and January 2019 meetings. It was concluded that the Board and its committees operate effectively. Periodically, this process is conducted by an independent consultant. This last happened in 2017.

Information and control systems of the Board vis-à-vis management

Information on management

The Board ensures that it receives sufficient information from the Executive Committee to perform its supervisory duty and undertake the non-delegable decisions. The Board obtains this information through several means:

• The CEO informs the Board regularly about current developments.
• Executive Committee meeting minutes are made available to the Board.
• Meetings or teleconferences are held as required between Board members and the CEO.
• The Board and Board committees regularly meet with the CEO and other Executive Committee members, and occasionally with other senior management members.
• The Board receives detailed written updates from each division and business unit head via the CEO Report on a monthly basis and via a yearly presentation from each division and business unit head.
• By invitation, other members of management attend Board meetings to report on areas of the business for which they are responsible.
• Board members are entitled to request information from Executive Committee members or any other Novartis associate, and they may visit any Novartis site.

To get an outside view, the Board and Board committees occasionally invite external advisors to attend and/or represent a specific topic at Board meetings. In particular, the independent advisor of the Compensation Committee is regularly invited to partly attend meetings. The Chief Financial Officer (CFO), the Group General Counsel, the Global Head of Novartis Business Assurance & Advisory/Internal Audit, the Head of Group Financial Reporting & Accounting, the Chief Ethics, Risk and Compliance Officer, and representatives of the external auditors are invited to partly attend each Audit and Compliance Committee meeting. Additionally, the Global Head of the SpeakUp Office and the Head of Novartis Group Quality report on a regular basis to the Audit and Compliance Committee.

Novartis management information system

Novartis produces comprehensive, consolidated (unaudited) financial statements on a monthly basis for the Group and its operating divisions. These are typically available within 10 days after the end of the month, and include the following:

• Consolidated income statement of the month and year-to-date in accordance with International Financial Reporting Standards (IFRS), as well as adjustments to arrive at core results, as defined by Novartis (see “Item 5. Operating and Financial Review and Prospects—Item 5.A Operating results—Non-IFRS measures as defined by Novartis”). The IFRS and core figures are compared to the prior-year period and targets in both USD and on a constant currency basis.
• Supplementary data on a monthly and year-to-date basis, such as free cash flow, gross and net debt, headcount, personnel costs, working capital, and earnings per share on a USD basis where applicable.

An explanation of non-IFRS measures can be found in “Item 5. Operating and Financial Review and Prospects—Item 5.A Operating results—Non-IFRS measures as defined by Novartis.”

Management information related to the consolidated income statements and free cash flow is made available to Board members on a monthly basis through the CEO Report. An analysis of key deviations from the prior year or target is also provided.

Prior to the release of each quarter’s results, the Board receives the actual consolidated financial statement information and an outlook of the full-year results in accordance with IFRS and “core” results (as defined by Novartis), together with related commentary.

On an annual basis in the middle of the year, the Board also reviews and approves the Company’s strategic plan for the next three years. In the fourth quarter of the year, the Board receives and approves the operating targets for the following year as well as the financial targets for the following three-year period, including a projected consolidated income statement in USD prepared in accordance with IFRS and non-IFRS measures as defined by Novartis (“core results”).

The Board does not have direct access to the Company’s financial and management reporting systems but can, at any time, request more detailed financial information on any aspect that is presented to it.

Internal Audit

The purpose of the Internal Audit function is to assist the Board and the Executive Committee in discharging their governance responsibilities by providing independent assurance, advice and insights on the effectiveness and efficiency of processes and controls that support Novartis in achieving its objectives, identifying and managing its major risks, and ensuring compliance with applicable policies, laws and regulations.

The execution of the Audit and Compliance Committee-approved audit plan via audit and advisory engagements happens at both the Group and individual entity
levels, depending on the risk exposure. Internal Audit reports the results to the audited units, the Audit and Compliance Committee, and the Executive Committee. Additionally, the Audit and Compliance Committee and the Executive Committee receive consolidated results (including a root cause analysis). Internal Audit also shares best practices as well as recurring findings with the business to foster learning and continuous improvement. Any material irregularities, whether actual or suspected, are directly escalated to the SpeakUp Office for investigation and to the Audit and Compliance Committee. Action plans to implement necessary changes and enhancements are developed together with the business and/or the auditee, and their closure is monitored by Internal Audit. In case of major findings, a follow-up audit is planned to ensure proper remediation. All issues and recommendations are stored in a single application to enable efficient follow-up monitoring.

Internal Audit has performed 82 audits from its annual plan, and has conducted 31 advisory engagements and site visits. Overall progress has mainly been identified in the area of compliance. Remediation plans to address information security, data privacy and business continuity risks are on track. Recurring observations identified across various functions and business units relate to improving third-party management, cross-functional collaboration, legacy systems and complex processes.

Risk management

In 2018, we combined our risk management and compliance functions into a single organizational umbrella to provide the businesses with a better view of the risks we face as an organization, and how those risks could impact our ability to deliver on strategic priorities. Our approach to risk management includes streamlining the risk assessment and monitoring process to ensure that we have a single risk approach throughout Novartis, fully supported by online tools and data analytics. In 2018, we launched our newly harmonized Integrity & Compliance Risk Assessment and Monitoring (RAM) process. The RAM process integrates current risk assessments, self-assessments, control activities and monitoring into a single, continuous, cyclical process. Organizational and process measures have been designed to identify and mitigate risks at an early stage. Organizationally, the responsibility for risk assessment and management is allocated to the divisions, organizational units and functions, with specialized corporate functions – such as Group Finance; Group Legal; Group Quality Assurance; Corporate Health, Safety and Environment; Business Continuity Management; Integrity and Compliance; and the SpeakUp Office – providing support and controlling the effectiveness of the risk management in these respective areas.

The Risk Committee assists the Board of Directors in ensuring that risks are properly assessed and professionally managed by overseeing the risk management system and processes, as well as by reviewing the risk portfolio and related actions implemented by management. For this purpose, the Group Risk Office and the risk owners of the divisions report on a regular basis to the Risk Committee. The Risk Committee ensures that all necessary steps are taken to foster a culture of risk-adjusted decision-making without constraining reasonable risk-taking and innovation. The Risk Committee also assumes responsibility for approving guidelines and processes, and informs the Board on a periodic basis about the risk management system as well as the most significant risks and how they are managed. Together with management, internal auditors and external auditors, the Risk Committee reviews the identification, prioritization and management of the risks; the accountabilities and roles of the functions involved with risk management; the risk portfolio; and the related actions implemented by management. The Group General Counsel, the Head of the Group Risk Office, the Global Head of Novartis Business Assurance & Advisory/Internal Audit, the Chief Ethics, Risk and Compliance Officer, and other senior executives are invited to the meetings of the Risk Committee. The Compensation Committee works closely with the Risk Committee to ensure that the compensation system does not lead to excessive risk-taking by management (for details, see “—Item 6.B Compensation”).
### Board of Directors

**Joerg Reinhardt, Ph.D.**
Chairman of the Board of Directors | Nationality: German | Year of Birth: 1956

Joerg Reinhardt, Ph.D., has been Chairman of the Board of Directors since 2013. He is also Chairman of the Research & Development Committee and Chairman of the Board of Trustees of the Novartis Foundation. Mr. Reinhardt is chairman of the board of trustees of the Institute of Molecular and Clinical Ophthalmology Basel (IOM), Switzerland. From 2010 to mid-2013, he was chairman of the board of management and the executive committee of Bayer HealthCare, Germany. Prior to that, he was Chief Operating Officer of Novartis from 2008 to 2010, and Head of the Vaccines and Diagnostics Division of Novartis from 2006 to 2008. Mr. Reinhardt is a non-executive board member of Swiss Re: Switzerland, and a member of the European Advisory Panel of Temasek, Singapore. Additionally, he was a member of the board of directors of Lonza Group AG in Switzerland from 2012 to 2013, Chairman of the Board of the Genomics Institute of the Novartis Research Foundation in the United States from 2000 to 2010, and a member of the supervisory board of MorphoSys AG in Germany from 2001 to 2004.

Mr. Reinhardt graduated with a doctorate in pharmaceutical sciences from Saarland University in Germany. He joined Sandoz Pharma Ltd. in 1982 and held various positions at Sandoz and later Novartis, including Head of Development.

**Enrico Vanni, Ph.D.**
Vice Chairman of the Board of Directors | Nationality: Swiss | Year of Birth: 1951

Enrico Vanni, Ph.D., has been a member of the Board of Directors since 2011 and qualifies as an independent Non-Executive Director. He is Vice Chairman of the Board of Directors and Chairman of the Compensation Committee. He is also a member of the Audit and Compliance Committee and the Governance, Nomination and Corporate Responsibilities Committee.

Mr. Vanni retired as director of McKinsey & Company in 2007. He is a board member of several companies in industries from healthcare to private banking, including Advanced Oncotherapy PLC in the United Kingdom, and non-listed companies such as Lombard Oder SA and Banque Privée BCP (Suisse) SA – both based in Switzerland. He previously served on the boards of Ecolis and Nestlé in Switzerland from 2009 to 2017, Alcon Inc. in Switzerland from 2010 to 2011, and Actavis PLC in Ireland in 2010.

Mr. Vanni holds an engineering degree in chemistry from the Federal Polytechnic School of Lausanne, Switzerland; a doctorate in chemistry from the University of Lausanne; and a Master of Business Administration from INSEAD in Fontainebleau, France. He began his career as a research engineer at the International Business Machines Corp. (IBM) in California, United States, and joined McKinsey in Zurich in 1980. He managed the Geneva office for McKinsey from 1988 to 2004, and consulted for companies in the pharmaceutical, consumer and finance sectors. He led McKinsey’s European pharmaceutical practice and served as a member of the firm’s partner review committee prior to his retirement. From 2008 to 2015, he was an independent consultant, supporting leaders of pharmaceutical and biotechnology companies on core strategic challenges facing the healthcare industry.

**Nancy C. Andrews, M.D., Ph.D.**
Member of the Board of Directors | Nationality: American/Swiss | Year of Birth: 1958

Nancy C. Andrews, M.D., Ph.D., has been a member of the Board of Directors since 2015. She qualifies as an independent Non-Executive Director and is a member of the Research & Development Committee and the Risk Committee.

Dr. Andrews is dean emerita of the Duke University School of Medicine and vice chancellor emerita for academic affairs at Duke University in the United States. She served as dean and vice chancellor from 2007 to 2017. She is a professor of pediatrics, pharmacology and cancer biology at Duke, and was elected as a fellow of the American Association for the Advancement of Science and to membership in the US National Academy of Sciences, the National Academy of Medicine, and the American Academy of Arts and Sciences. She is chair of the board of directors of the American Academy of Arts and Sciences, a member and former chair of the board of directors of the Burroughs Wellcome Fund, a member of the Massachusetts Institute of Technology (MIT) Corporation, and former president of the American Society for Clinical Investigation. Additionally, she serves on the council of the National Academy of Medicine, on the Scientific Management Review Board of the National Institutes of Health and on the Scientific Advisory Board of Dyne Therapeutics, all in the US.

Dr. Andrews holds a doctorate in biology from MIT and a doctor of medicine from Harvard Medical School, both in the US. She completed her residency and fellowship trainings in pediatrics and hematology/oncology at Boston Children’s Hospital and the Dana-Farber Cancer Institute, also in the US, and served as an attending physician at Boston Children’s Hospital. Prior to joining Duke, Dr. Andrews was director of the Harvard/MIT M.D.-Ph.D. Program, and dean of basic sciences and graduate studies as well as professor of pediatrics at Harvard Medical School. From 1993 to 2006, she was a biomedical research investigator of the Howard Hughes Medical Institute in the US. Her research expertise is in iron homeostasis and mouse models of human diseases.
Dimitri Azar, M.D.
Member of the Board of Directors | Nationality: American | Year of Birth: 1959

Dimitri Azar, M.D., has been a member of the Board of Directors since 2012. He qualifies as an independent Non-Executive Director and is a member of the Governance, Nomination and Corporate Responsibilities Committee and the Research & Development Committee.

Dr. Azar is senior director of ophthalmological innovation at Alphabet Verily Life Sciences. He also serves as distinguished professor of ophthalmology, bioengineering and pharmacology at the University of Illinois at Chicago (UIC) College of Medicine in the United States, and was dean of the UIC College of Medicine from 2011 to 2018. From 2006 to 2011, he was head of the Department of Ophthalmology and Visual Sciences at UIC. He is a member of the American Ophthalmological Society, a board member of the Chicago Medical Society, and former president of the Chicago Ophthalmological Society. Additionally, he is on the board of the Tear Film and Ocular Surface Society, the board of Verb Surgical Inc., and the scientific board of Verily – all based in the US.

Dr. Azar began his career at the American University of Beirut Medical Center in Lebanon, and completed his fellowship and residency training at the Massachusetts Eye and Ear Infirmary at Harvard Medical School in the US. His research on matrix metalloproteinases in corneal wound healing and angiogenesis has been funded by the US National Institutes of Health since 1993. Dr. Azar practiced at the Wilmer Eye Institute at the Johns Hopkins Hospital School of Medicine in the US, and then returned to the Massachusetts Eye and Ear Infirmary as director of cornea and external disease. He became professor of ophthalmology with tenure at Harvard Medical School in 2003. Dr. Azar holds a master’s degree from Harvard and an Executive Master of Business Administration from the University of Chicago Booth School of Business in the US.

Ton Buechner
Member of the Board of Directors | Nationality: Dutch/Swiss | Year of Birth: 1965

Ton Buechner has been a member of the Board of Directors since 2016. He qualifies as an independent Non-Executive Director and is a member of the Audit and Compliance Committee.

Mr. Buechner most recently served as chairman and CEO of the executive board of Dutch multinational AkzoNobel from 2012 to 2017. Prior to joining AkzoNobel, he spent almost two decades at the Sulzer Corporation in Switzerland, where he was appointed divisional president in 2001 and served as president and CEO from 2007 to 2011. Mr. Buechner’s early career was spent in the oil and gas construction industry, and included roles at Allseas Engineering in the Netherlands and at Aker Kværner in Singapore. He served as a member of the supervisory board of Voith GmbH & Co. KGaA in Germany from 2014 to 2018, and continues to serve on Voith’s presidential and shareholder committees.

Mr. Buechner is an engineer by training. He received his master’s degree in civil engineering from Delft University of Technology in the Netherlands in 1988, specializing in offshore construction technology and coastal engineering. Mr. Buechner holds a Master of Business Administration from IMD business school in Lausanne, Switzerland.

Srikant Datar, Ph.D.
Member of the Board of Directors | Nationality: American | Year of Birth: 1953

Srikant Datar, Ph.D., has been a member of the Board of Directors since 2003 and qualifies as an independent Non-Executive Director. He is Chairman of the Risk Committee, as well as a member of the Audit and Compliance Committee and the Compensation Committee. The Board of Directors has appointed him as Audit Committee Financial Expert.

Since 1996, Mr. Datar has been the Arthur Lowes Dickinson professor of business administration at Harvard Business School in the United States. Additionally, since 2015, he has been faculty chair of the Harvard Innovation Lab and senior associate dean for university affairs at Harvard Business School. He is a member of the boards of directors of ICF International Inc., Stryker Corp. and T-Mobile US, all in the US. He previously served on the boards of HCL Technologies Ltd. (2012 to 2014) and KPI Cummins Infosystems Ltd. (2007 to 2012), both based in India.

Mr. Datar graduated in 1973 with distinction in mathematics and economics from the University of Bombay in India. He is a chartered accountant, and holds two master’s degrees and a doctorate from Stanford University in the US. Mr. Datar has worked as an accountant and planner in industry, and as a professor at Carnegie Mellon University, Stanford University and Harvard University, all in the US. His research interests are in the areas of cost management, measurement of productivity, new product development, innovation, time-based competition, incentives and performance evaluation. He is the author of many scientific publications and has received several academic awards and honors. Mr. Datar has also advised and worked with numerous companies in research, development and training.
Elizabeth (Liz) Doherty  
**Member of the Board of Directors | Nationality: British | Year of Birth: 1957**  
Elizabeth (Liz) Doherty has been a member of the Board of Directors since 2016. She qualifies as an independent Non-Executive Director and is Chairman of the Audit and Compliance Committee and a member of the Risk Committee. The Board of Directors has appointed her as Audit Committee Financial Expert.

Ms. Doherty is a senior independent director and chairman of the audit and risk committee of Dunelm Group PLC in the United Kingdom, and a member of the supervisory board and audit committee of Corbion NV in the Netherlands. She is a fellow of the Chartered Institute of Management Accountants; a non-executive board member of the UK Ministry of Justice; a non-executive board member of Her Majesty’s Courts and Tribunals Service in the UK, and an advisor to GBfoods and Affinity Petcare SA, subsidiaries of Agrolimen SA. She previously served as a non-executive director and audit committee member at Delhaize Group in Belgium and Nokia Corp. in Finland, and as a non-executive director at SABMiller PLC in the UK.

Ms. Doherty received her bachelor’s degree in liberal studies in science (physics) from the University of Manchester in the UK. She began her career as an auditor and has held senior finance and accounting roles at Unilever PLC and Tesco PLC. Her previous positions also include interim chief financial officer (CFO) of Cogni Schools Ltd. from 2014 to 2015, CFO and board member of Reckitt Benckiser Group PLC from 2011 to 2013, interim CFO of City Inn in 2010, and CFO of Brambles Ltd. from 2007 to 2009.

Ann Fudge  
**Member of the Board of Directors | Nationality: American | Year of Birth: 1951**  
Ann Fudge has been a member of the Board of Directors since 2008. She qualifies as an independent Non-Executive Director and is a member of the Compensation Committee; the Governance, Nomination and Corporate Responsibilities Committee; and the Risk Committee.

Ms. Fudge is chair of the United States Program Advisory Panel of the Bill & Melinda Gates Foundation, and vice chairman of Boston-based WGBH Public Media. She is also a non-executive director of Northrop Grumman Corporation in the US, and a member of the visiting committee of Harvard Business School in the US. She served as a non-executive director of Unilever, London and Rotterdam, from 2009 to 2018, and as vice chairman and senior independent director of Unilever from 2015 to 2018. Additionally, she was a board member of General Electric Co. in the US from 1999 to 2015.

Ms. Fudge received her bachelor’s degree from Simmons College in the US and her Master of Business Administration from Harvard Business School. She is former chairman and CEO of Young & Rubicam Brands, New York. Before that, she served as president of the Beverages, Desserts and Post Division of Kraft Foods Inc.

Frans van Houten  
**Member of the Board of Directors | Nationality: Dutch | Year of Birth: 1960**  
Frans van Houten has been a member of the Board of Directors since February 2017. He qualifies as an independent Non-Executive Director and is a member of the Research & Development Committee.

Mr. van Houten is CEO and chairman of the executive committee and the board of management of Royal Philips, a position he has held since 2011. Under his leadership, Philips has transformed itself into a focused health technology company. From May 2016 through December 2017, he also served as vice chairman and a member of the supervisory board of Philips Lighting.

Mr. van Houten holds a master’s degree in economics and business management from Erasmus University Rotterdam in the Netherlands. He joined Philips in 1986 and has held multiple global senior leadership positions. In 2009 and 2010, he was a consultant to the boards of companies such as ING Group NV and ASM International NV. Before that, he was CEO of NXP Semiconductors (a Philips spin-off) from 2004 to 2009.
Andreas von Planta, Ph.D.
Member of the Board of Directors | Nationality: Swiss | Year of Birth: 1955
Andreas von Planta, Ph.D., has been a member of the Board of Directors since 2006. He qualifies as an independent Non-Executive Director and is Chairman of the Governance, Nomination and Corporate Responsibilities Committee. He is also a member of the Audit and Compliance Committee and the Risk Committee.
Mr. von Planta provides senior counsel to the law firm Lenz & Staehelin AG, where he was a partner from 1988 through 2017. He is chairman of HSBC Private Bank (Suisse) SA, chairman of the regulatory board of the SIX Swiss Exchange AG, and a board member of Helvetia Holding AG in Switzerland. He also serves on the boards of various Swiss subsidiaries of foreign companies and other non-listed Swiss companies, including Burberry (Suisse) SA, A.P. Moller Finance SA and Socotab Frana SA. He previously served on the boards of Raymond Weil SA (2007 to 2018) and Lenz & Staehelin (1996 to 2018), both based in Switzerland.
Mr. von Planta holds a doctorate in law from the University of Basel in Switzerland, and a Master of Laws from Columbia Law School in the United States. He passed his bar examinations in Basel in 1982, and specializes in corporate law, corporate governance, corporate finance, company reorganizations, and mergers and acquisitions. He served as chairman of Clinique Générale-Beaulieu SA from 2011 to 2016, and as a director there from 2008 to 2016. Additionally, he was chairman of Swiss National Insurance Company Ltd. (Nationale Suisse) from 2011 to 2015, a director at Nationale Suisse from 1997 to 2015, and a director at Holcim Ltd. from 2003 to 2014.

Charles L. Sawyers, M.D.
Member of the Board of Directors | Nationality: American | Year of Birth: 1959
Charles L. Sawyers, M.D., has been a member of the Board of Directors since 2013. He qualifies as an independent Non-Executive Director and is a member of the Governance, Nomination and Corporate Responsibilities Committee and the Research & Development Committee.
In the United States, Dr. Sawyers is chair of the Human Oncology and Pathogenesis Program at Memorial Sloan Kettering Cancer Center, professor of medicine and of cell and developmental biology at the Weill Cornell Graduate School of Medical Sciences, and an investigator at the Howard Hughes Medical Institute. He was appointed to the US National Cancer Advisory Board, and is former president of the American Association for Cancer Research and of the American Society for Clinical Investigation. He is also a member of the US National Academy of Sciences, the National Academy of Medicine, and the American Academy of Arts and Sciences. He serves as a science advisor for the following companies: Agios Pharmaceuticals Inc., Housey Pharmaceutical Research Laboratories, Nextech Invest Ltd., Blueprint Medicines Corporation, BeiGene Ltd., The Column Group, ORIC Pharmaceuticals Inc., KSIQ Therapeutics Inc., Foghorn Therapeutics Inc. and PMV Pharmaceuticals Inc.
Dr. Sawyers received his doctor of medicine from the Johns Hopkins University School of Medicine in the US, and worked at the Jonsson Comprehensive Cancer Center at the University of California, Los Angeles, for nearly 18 years before joining Memorial Sloan Kettering in 2006. An internationally acclaimed cancer researcher, he co-developed the Novartis cancer drug Gleevec/Glivec and has received numerous honors and awards, including the Lasker-DeBakey Clinical Medical Research Award in 2009.

William T. Winters
Member of the Board of Directors | Nationality: British/American | Year of Birth: 1961
William T. Winters has been a member of the Board of Directors since 2013. He qualifies as an independent Non-Executive Director and is a member of the Compensation Committee.
Mr. Winters is CEO and a board member of Standard Chartered, based in London. He also serves on the board of Colgate University in the United States, and on the boards of the International Rescue Committee and the Print Room theater in the United Kingdom.
Mr. Winters received his bachelor’s degree from Colgate University and his Master of Business Administration from the Wharton School of the University of Pennsylvania in the US. From 2011 to 2015, he was chairman and CEO of Renshaw Bay, an alternative asset management firm. Prior to that, he was co-CEO of JPMorgan’s investment bank from 2003 to 2010. He joined JPMorgan in 1983 and has held management roles across several market areas and in corporate finance. Additionally, he was a commissioner on the UK Independent Commission on Banking in 2010 and 2011, and was awarded the title of Commander of the Order of the British Empire in 2013.

Honorary Chairmen
Alex Krauer, Ph.D.
Daniel Vasella, M.D.

Corporate Secretary
Charlotte Pamer-Wieser, Ph.D.
Our management

Composition of the Executive Committee (as per December 31, 2018)

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vasant Narasimhan</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>Steven Baert</td>
<td>Chief People &amp; Organization Officer</td>
</tr>
<tr>
<td>Elizabeth Barrett</td>
<td>CEO, Novartis Oncology (until December 31, 2018)</td>
</tr>
<tr>
<td>Bertrand Bodson</td>
<td>Chief Digital Officer</td>
</tr>
<tr>
<td>James Bradner</td>
<td>President of the Novartis Institutes for BioMedical Research (NIBR)</td>
</tr>
<tr>
<td>Richard Francis</td>
<td>CEO, Sandoz</td>
</tr>
<tr>
<td>Paul Hudson</td>
<td>CEO, Novartis Pharmaceuticals</td>
</tr>
<tr>
<td>Harry Kirsch</td>
<td>Chief Financial Officer</td>
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<tr>
<td>Shannon Thyme Klinger</td>
<td>Group General Counsel</td>
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<tr>
<td>Steffen Lang</td>
<td>Global Head of Novartis Technical Operations</td>
</tr>
<tr>
<td>Klaus Moosmayer</td>
<td>Chief Ethics, Risk and Compliance Officer</td>
</tr>
<tr>
<td>John Tsai</td>
<td>Head of Global Drug Development and Chief Medical Officer</td>
</tr>
<tr>
<td>Robert Weltevreden</td>
<td>Head of Novartis Business Services</td>
</tr>
</tbody>
</table>

1 Susanne Schaffert was appointed CEO Novartis Oncology and a member of the Executive Committee, effective January 1, 2019.

Executive Committee composition

The Executive Committee is led by the CEO. Its members are appointed by the Board. There are no contracts between Novartis and third parties whereby Novartis would delegate any business management tasks to such third parties.

Executive Committee role and functioning

The Board has delegated to the Executive Committee overall responsibility for and oversight of the operational management of Novartis. This includes:
- Recruiting, appointing and promoting senior management
- Ensuring the efficient operation of the Group and the achievement of optimal results
- Promoting an active internal and external communications policy
- Developing policies and strategic plans for Board approval, and implementing those approved
- Submitting the following to the Board for approval: investments, divestments, transactions, contracts and litigations with a value exceeding USD 500 million, important capital market and other financing transactions, as well as all (other) matters of fundamental significance for the Novartis Group
- Preparing and submitting quarterly and annual reports to the Board and its committees
- Informing the Board of all matters of fundamental significance to the businesses
- Dealing with any other matters delegated by the Board

CEO

In addition to other Board-assigned duties, the CEO leads the Executive Committee, building and maintaining an effective executive team. With the support of the Executive Committee, the CEO:
- Is responsible for the operational management of Novartis
- Develops strategy proposals to be recommended to the Board, and ensures that approved strategies are implemented
- Plans human resourcing to ensure that Novartis has the capabilities and means to achieve its plans, and that robust management succession and management development plans are in place and presented to the Board
- Develops an organizational structure, and establishes processes and systems to ensure the efficient organization of resources
- Ensures that financial results, business strategies and, when appropriate, targets and milestones are communicated to the investment community – and generally develops and promotes effective communication with shareholders and other stakeholders
- Ensures that the business performance is consistent with business principles as well as high legal and ethical standards, and that the culture of Novartis is consistent with the Novartis Values and Behaviors
- Develops processes and structures to ensure that capital investment proposals are reviewed thoroughly, that associated risks are identified, and that appropriate steps are taken to manage these risks
- Develops and maintains an effective framework of internal controls over risk in relation to all business activities of the Company
- Ensures that the flow of information to the Board is accurate, timely and clear
Mandates outside the Novartis Group

According to article 34 of the Articles of Incorporation (www.novartis.com/investors/company-overview/corporate-governance), no Executive Committee member may hold more than six additional mandates in other companies, of which no more than two additional mandates shall be in other listed companies. Each of these mandates is subject to Board approval. Executive Committee members are not allowed to hold chairmanships of the boards of directors of other listed companies.

The following mandates are not subject to these limitations:

a) Mandates in companies that are controlled by Novartis AG

b) Mandates that an Executive Committee member holds at the request of Novartis AG or companies controlled by it. No Executive Committee member shall hold more than five such mandates.

c) Mandates in associations, charitable organizations, foundations, trusts and employee welfare foundations. No Executive Committee member may hold more than 10 such mandates.

"Mandates" means those in the supreme governing body of a legal entity that is required to be registered in the commercial register or a comparable foreign register. Mandates in different legal entities that are under joint control are deemed one mandate.

The Board may issue regulations that determine additional restrictions, taking into account the position of the respective member.

Loans and credits

No loans or credits shall be granted to Executive Committee members.
Executive Committee

Vasant (Vas) Narasimhan, M.D.
Chief Executive Officer of Novartis | Nationality: American | Year of Birth: 1976

Vasant (Vas) Narasimhan, M.D., has been Chief Executive Officer (CEO) of Novartis since February 1, 2018. Dr. Narasimhan previously was Global Head of Drug Development and Chief Medical Officer for Novartis. He has also served as Global Head of Development for Novartis Pharmaceuticals, Global Head of the Sandoz Biopharmaceuticals and Oncology Injectables business unit; Global Head of Development for Novartis Vaccines, North America Region Head for Novartis Vaccines, and United States Country President for Novartis Vaccines and Diagnostics. Before joining Novartis in 2005, he worked at McKinsey & Company.

Dr. Narasimhan received his medical degree from Harvard Medical School in the US, a master’s degree in public administration from the Harvard Kennedy School of Government, and a bachelor’s degree in biological sciences from the University of Chicago in the US. During and after his medical studies, he worked extensively on a range of public health issues in developing countries. He is an elected member of the US National Academy of Medicine and serves on the board of fellows of Harvard Medical School.

Steven Baert
Chief People & Organization Officer of Novartis | Nationality: Belgian | Year of Birth: 1974

Steven Baert has been Chief People & Organization Officer of Novartis since 2014. He is a member of the Executive Committee of Novartis.

Mr. Baert joined Novartis in 2006 as Head of Human Resources Global Functions in Switzerland. He has held other leadership roles at Novartis, including Head of Human Resources for Emerging Growth Markets; Head of Human Resources, United States and Canada, for Novartis Pharmaceuticals Corporation; and Global Head of Human Resources for Novartis Oncology. Prior to joining Novartis, he held HR positions at Bristol-Myers Squibb Co. and Unilever.

Mr. Baert studied in Belgium and received a Master of Business Administration from Vlerick Business School in Ghent, a Master of Laws from the Katholieke Universiteit Leuven, and a Bachelor of Laws from the Katholieke Universiteit Brussels. He serves on the board of WeSeeHope USA, and from 2015 to 2018, he represented Novartis on the board of GlaxoSmithKline Consumer Healthcare Holdings Ltd.

Elizabeth (Liz) Barrett (until December 31, 2018)
CEO, Novartis Oncology | Nationality: American | Year of Birth: 1962

Elizabeth (Liz) Barrett was appointed CEO of Novartis Oncology on January 1, 2018. On December 31, 2018, she stepped down as CEO of Novartis Oncology and as a member of the Executive Committee of Novartis.

Ms. Barrett previously served as global president of oncology at Pfizer Inc. Since joining Pfizer in 2009, she has held other leadership positions, including president of Global Innovative Pharma for Europe, president of the specialty care business unit for North America, and president of United States oncology. Prior to Pfizer, she was vice president and general manager of the oncology business unit at Cephalon Inc. from 2006 to 2009, and before that, she worked at Johnson & Johnson. She started her career at Kraft Foods Group Inc. in 1984.

Ms. Barrett holds a Bachelor of Science from the University of Louisiana and a Master of Business Administration from Saint Joseph’s University, both in the US.

Bertrand Bodson
Chief Digital Officer of Novartis | Nationality: Belgian | Year of Birth: 1975

Bertrand Bodson has been Chief Digital Officer of Novartis since January 1, 2018. He is a member of the Executive Committee of Novartis.

From 2013 to 2017, Mr. Bodson served as chief digital and marketing officer of Sainsbury's Argos, where he led Argos’ successful transformation from a traditional catalogue business to the third-largest online retailer in the United Kingdom. Prior to that, he was executive vice president of the global digital business at EMI Music from 2010 to 2013. He co-founded Bragster.com, a social networking and content sharing website, and has also held senior roles at Amazon.

Mr. Bodson earned a Master of Business Administration from Harvard Business School in the United States, where he was a Baker Scholar, and a master’s degree in commercial engineering from the Solvay Business School (Belgium)/McGill University (Canada). He is a member of the board of directors of Electrocomponents PLC.

James (Jay) Bradner, M.D.
President of the Novartis Institutes for BioMedical Research (NIBR) | Nationality: American | Year of Birth: 1972

James (Jay) Bradner, M.D., has been President of the Novartis Institutes for BioMedical Research (NIBR) since 2016. He is a member of the Executive Committee of Novartis.

From 2009 through 2015, Dr. Bradner served on the research faculty of Harvard Medical School and as an attending physician in stem cell transplantation within the Department of Medical Oncology at the Dana-Farber Cancer Institute in the United States. He has co-founded five biotechnology companies and has co-authored more than 200 scientific publications and 30 US patent applications.

Dr. Bradner is a graduate of Harvard College and the University of Chicago Medical School in the US. He completed his residency in medicine at Brigham and Women’s Hospital, his fellowship in medical oncology and hematology at the Dana-Farber Cancer Institute, and his postdoctoral training in chemistry and chemical biology at Harvard University. He has received many honorific awards and was elected into the American Society for Clinical Investigation in 2011 and the Alpha Omega Alpha Honor Medical Society in 2013.
**Richard Francis**  
CEO, Sandoz | Nationality: British | Year of Birth: 1968

Richard Francis has been CEO of Sandoz since 2014. He is a member of the Executive Committee of Novartis. Mr. Francis joined Novartis from Biogen Idec, where he held global and country leadership positions during his 13-year career with the company. Most recently, he was senior vice president of the company’s United States commercial organization. From 1998 to 2001, he was at Sanofi in the United Kingdom, and held various marketing roles across the company’s urology, analgesics and cardiovascular products. He also held sales and marketing positions at Lorex Synthélabo and Wyeth.

Mr. Francis is a member of the board of directors of Mettler-Toledo International Inc., based in the US. He received a Bachelor of Arts in economics from Manchester Metropolitan University in the UK.

**Paul Hudson**  
CEO, Novartis Pharmaceuticals | Nationality: British | Year of Birth: 1967

Paul Hudson has been CEO of Novartis Pharmaceuticals since 2016. He is a member of the Executive Committee of Novartis.

Mr. Hudson joined Novartis from AstraZeneca PLC, where he most recently was president, AstraZeneca United States and executive vice president, North America. He also served as representative director and president of AstraZeneca K.K. in Japan; as president of AstraZeneca’s business in Spain; and as vice president and primary care director, United Kingdom. Before joining AstraZeneca in 2006, Mr. Hudson held roles of increasing responsibility at Schering-Plough, including leading biologics global marketing. He began his career in sales and marketing roles at GlaxoSmithKline UK and Sanofi-Synthélabo UK.

Mr. Hudson holds a degree in economics from Manchester Metropolitan University in the UK and a diploma in marketing from the Chartered Institute of Marketing in the UK. In 2018, he was awarded an honorary doctorate in business administration from MMU. He is a board member of the European Federation of Pharmaceutical Industries and Associations (EFPIA) and vice chair of the Innovation Board Sponsored Committee of EFPIA.

**Harry Kirsch**  
Chief Financial Officer of Novartis | Nationality: German/Swiss | Year of Birth: 1965

Harry Kirsch has been Chief Financial Officer (CFO) of Novartis since 2013. He is a member of the Executive Committee of Novartis.

Mr. Kirsch joined Novartis in 2003 and, prior to his current position, served as CFO of the Pharmaceuticals Division. Under his leadership, the division’s core operating income margin increased, in constant currencies, every quarter of 2011 and 2012 despite patent expirations. At Novartis, he also served as CFO of Pharma Europe, and as Head of Business Planning & Analysis and Financial Operations for the Pharmaceuticals Division. Mr. Kirsch joined Novartis from Procter & Gamble (P&G) in the United States, where he was CFO of P&G’s global pharmaceutical business. Prior to that, he held finance positions in various categories of P&G’s consumer goods business, technical operations, and Global Business Services organization.

Mr. Kirsch holds a diploma degree in industrial engineering and economics from the University of Karlsruhe in Germany. From 2015 to 2018, he represented Novartis on the board of GlaxoSmithKline Consumer Healthcare Holdings Ltd.

**Shannon Thyme Klinger**  
Group General Counsel of Novartis | Nationality: American | Year of Birth: 1971

Shannon Thyme Klinger has been Group General Counsel of Novartis since June 1, 2018. She is a member of the Executive Committee of Novartis.

Ms. Klinger most recently served as Chief Ethics, Risk and Compliance Officer, and was appointed to the Executive Committee of Novartis in this role. Before that, she was Chief Ethics and Compliance Officer and Global Head of Litigation. She joined Novartis in 2011 as General Counsel, North America, for Sandoz in the United States and later became the Global Head of Legal and General Counsel for Sandoz International GmbH. Prior to Novartis, Ms. Klinger worked in the US as a partner at Mayer Brown LLP from 2010 to 2011, senior vice president and general counsel for Solvay Pharmaceuticals Inc. from 2008 to 2010, and vice president of marketing compliance and associate counsel for Barr Laboratories/Duramed Pharmaceuticals from 2005 to 2007. She was also a partner at Alston & Bird LLP, where she focused on litigation and antitrust, pharmaceutical legal and regulatory matters.

Ms. Klinger holds a juris doctor with honors from the University of North Carolina at Chapel Hill and a bachelor’s degree in psychology from the University of Notre Dame (both in the US). She is a member of the board of directors of the SIX Group.

**Steffen Lang, Ph.D.**  
Global Head of Novartis Technical Operations | Nationality: German/Swiss | Year of Birth: 1967

Steffen Lang, Ph.D., has been Global Head of Novartis Technical Operations since April 2017. He is a member of the Executive Committee of Novartis.

Prior to his current appointment, Mr. Lang served as Global Head of Biologics Technical Development and Manufacturing within Novartis Technical Operations. He joined Novartis in 1994 as Head of Laboratory in Research, and over the years has held positions of increasing responsibility within Pharmaceuticals Development, including Head of Biotechnology Development and Global Head of Technical Research and Development.

Mr. Lang holds a doctorate in pharmaceutical technology from the Swiss Federal Institute of Technology (ETH Zurich) in Switzerland, and a master’s degree in pharmaceutical sciences from the University of Heidelberg in Germany.
Klaus Moosmayer, Ph.D.
Chief Ethics, Risk and Compliance Officer of Novartis | Nationality: German | Year of Birth: 1968
Klaus Moosmayer, Ph.D., has been Chief Ethics, Risk and Compliance Officer of Novartis since December 1, 2018. He is a member of the Executive Committee of Novartis.
Mr. Moosmayer previously was chief compliance officer of Siemens AG, a position he held since 2014. During his 18-year career at Siemens, Mr. Moosmayer also served as chief counsel compliance, compliance operating officer and corporate legal counsel. Before joining Siemens, he practiced law in Germany, specializing in white-collar crime, litigation and business law.
Mr. Moosmayer received his doctor of jurisprudence from the University of Freiburg in Germany and is internationally recognized in the field of compliance. He is chair of the Anti-Corruption Task Force of the Business and Industry Advisory Committee at the Organization for Economic Co-operation and Development (OECD); co-founder and chair of the European Chief Compliance and Integrity Officers’ Forum; former co-chair of the B20 Integrity & Compliance Task Force under the G20 presidency of Argentina; and former chair of the task force under the G20 presidency of Germany. Mr. Moosmayer lectures on compliance at the University of St. Gallen in Switzerland.

John Tsai, M.D.
Head of Global Drug Development and Chief Medical Officer for Novartis | Nationality: American | Year of Birth: 1967
John Tsai, M.D., has been Head of Global Drug Development and Chief Medical Officer for Novartis since May 1, 2018. He is a member of the Executive Committee of Novartis.
Dr. Tsai joined Novartis from Amgen Inc., where he was chief medical officer and senior vice president of Global Medical, overseeing all clinical and medical functions across multiple sites worldwide. Before joining Amgen in 2017, he spent 11 years at Bristol-Myers Squibb Co. (BMS), most recently as global head of clinical development for marketed products. During his time at BMS, Dr. Tsai also served as a full development team lead in oncology, head of Worldwide Medical, chief medical officer for Europe, vice president of US Medical, and vice president of Cardiovascular Medical. Prior to BMS, he was a cardiovascular group leader at Pfizer Inc. He started his career as an electrical engineer at General Electric Co.
Dr. Tsai holds a medical degree from the University of Louisville School of Medicine in the United States. He received a Bachelor of Science in electrical engineering from Washington University in St. Louis, also in the US.

Robert Weltevreden
Head of Novartis Business Services (NBS) | Nationality: Dutch | Year of Birth: 1969
Robert Weltevreden has been Head of Novartis Business Services (NBS) since June 1, 2018. He is a member of the Executive Committee of Novartis.
Mr. Weltevreden previously worked at Syngenta AG as head of its business services organization. He joined Syngenta in 2003 and has held other leadership positions, including head of business process management; head of finance services; and chief financial officer (CFO) of the Asia-Pacific region for Syngenta Crop Protection AG. Prior to Syngenta, Mr. Weltevreden worked at Newell Rubbermaid Inc. as vice president/controller of Rubbermaid Europe and as CFO of the Germany, Benelux and Scandinavia markets. He started his career as a corporate business analyst at Curver and later became CFO of the Iberia region.
Mr. Weltevreden holds a master’s degree in international finance, economics and business administration from Erasmus University Rotterdam in the Netherlands. He also holds a Master of Business Administration in financial management from Vlerick Business School in Ghent, Belgium.

Susanne Schaffert, Ph.D.
CEO, Novartis Oncology | Nationality: German | Year of Birth: 1967
Susanne Schaffert, Ph.D., has been CEO of Novartis Oncology since January 1, 2019. She is a member of the Executive Committee of Novartis.
Ms. Schaffert was appointed Chairperson and President of Advanced Accelerator Applications when it was acquired by Novartis in January 2018, and will remain President until her successor is in place. She joined Novartis more than 20 years ago and served as Region Head, Novartis Oncology Europe, from 2012 to 2018. Prior to that, she was Head of Investor Relations for Novartis. She has also held other leadership positions during her career at Novartis, including Global Franchise Head for Immunology and Infectious Diseases, General Manager of Novartis Oncology in Northern and Central Europe, and General Manager of Novartis Oncology in Germany.
Ms. Schaffert holds a doctorate in organic chemistry from the University of Erlangen in Germany. She is a member of the Board of Novartis AG Germany, and previously served on the board of GlaxoSmithKline Consumer Healthcare Holdings Ltd.

Secretary
Katja Roth Pellanda, Ph.D.
Shareholder participation rights

Shareholders have the right to receive dividends, to vote and to execute all other rights as granted under Swiss law and the Articles of Incorporation (see, in particular, articles 17 and 18 of the Articles of Incorporation: www.novartis.com/investors/company-overview/corporate-governance).

Voting rights, restrictions and representation

Each Novartis share registered with the right to vote entitles the holder to one vote at General Meetings. To be registered with voting rights, a shareholder must declare that he or she acquired the shares in his or her own name and for his or her own account. According to article 5, paragraph 3 of the Articles of Incorporation (www.novartis.com/investors/company-overview/corporate-governance), the Board may register nominees with the right to vote (for registration of nominees, see “— Item 6.C Board practices—Our capital structure—Transferability and nominee registration”).

The Articles of Incorporation provide that no shareholder shall be registered with the right to vote for more than 2% of the registered share capital. Given that shareholder representation at General Meetings traditionally has been rather low in Switzerland, Novartis AG considers registration restrictions necessary to prevent a minority shareholder from dominating a General Meeting. The Board may, upon request, grant an exemption from this restriction. Considerations include whether the shareholder supports the Novartis goal of creating sustainable value and has a long-term investment horizon. Exemptions are in force for the registered significant shareholders listed in “— Item 6.C Board practices—Our Group structure and shareholders—Our shareholders—Significant shareholders,” and for Norges Bank (Central Bank of Norway), Oslo, which as of December 31, 2018, was not registered in the share register but according to a disclosure notification filed with Novartis AG, held 2.1% of the share capital of Novartis AG. No further exemptions were requested in 2018.

The same registration and voting restrictions indirectly apply to holders of ADRs. Shareholders, ADR holders, or nominees who are linked to each other or who act in concert to circumvent registration restrictions are treated as one person or nominee for the purposes of the restrictions on registration.

Shareholders can vote their Novartis shares by themselves or appoint another shareholder or the Independent Proxy to vote on their behalf. All shareholders (who are not yet registered on the online platform; see below) receive a General Meeting invitation letter with a proxy appointment form for the appointment of the Independent Proxy. On this form, shareholders can instruct the Independent Proxy to vote on alternative or additional motions related to the agenda items either (i) following the recommendations of the Board for such alternative or additional motions, or (ii) against such alternative or additional motions. They can also abstain from voting.

Novartis AG offers shareholders the opportunity to use an online platform (the Sherpany Platform) to receive invitations to future General Meetings exclusively by email and to electronically give their instructions to the Independent Proxy, grant powers of attorney to other shareholders, and order their admission cards online. The General Meeting registration form enables shareholders who are not yet registered on the Sherpany Platform to order detailed documents related to opening an account. They may also do so by contacting the Novartis Share Registry. Shareholders can deactivate their online account at any time and again receive invitations in paper form.

An ADR holder has the rights enumerated in the deposit agreement (such as the right to give voting instructions and to receive dividends). The ADS depositary of Novartis AG – JPMorgan Chase Bank, N.A., New York – holds the Novartis shares underlying the ADRs and is registered as a shareholder in the Novartis Share Register. An ADR is not a Novartis share, and an ADR holder is not a Novartis AG shareholder. Each ADR represents one Novartis share. ADR holders exercise their voting rights by instructing the depositary to exercise their voting rights. JPMorgan Chase Bank, N.A., exercises the voting rights for registered Novartis shares underlying ADRs for which no voting instructions have been given by providing a discretionairy proxy to an uninstructed independent designee. Such designee has to be a Novartis AG shareholder.

Powers of the General Meeting

The following powers are vested exclusively in the General Meeting:

- Adoption and amendment of the Articles of Incorporation
- Election and removal of the Chairman of the Board, Board and Compensation Committee members, the Independent Proxy and external auditors
- Approval of the management report (if required) and of the consolidated financial statements
- Approval of the financial statements of Novartis AG, and decision on the appropriation of available earnings shown on the balance sheet, including dividends
- Approval of the maximum aggregate amounts of compensation of the Board (for the period from an AGM until the next AGM) and of the Executive Committee (for the financial year following the AGM)
- Grant of discharge to Board and Executive Committee members
- Decision on other matters that are reserved by law or by the Articles of Incorporation (e.g., advisory vote on the Compensation Report) to the General Meeting of Shareholders

Statutory quorums

The General Meeting passes resolutions and elections with the absolute majority of the votes represented at the meeting. However, under article 18 of the Articles of Incorporation...
Incorporation (www.novartis.com/investors/company-overview/corporate-governance), the approval of two-thirds of the votes represented at the meeting is required for:

• Alteration of the purpose of Novartis AG
• Creation of shares with increased voting powers
• Implementation of restrictions on the transfer of registered shares, and the removal of such restrictions
• Authorized or conditional increase of the share capital
• Increase of the share capital out of equity, by contribution in kind, for the purpose of an acquisition of property or the grant of special rights
• Restriction or suspension of rights or options to subscribe
• Change of location of the registered office of Novartis AG
• Dissolution of Novartis AG

In addition, the law provides for a qualified majority for other resolutions, such as a merger or demerger.

Convocation of General Meetings

The AGM must be held within six months after the close of the financial year (December 31), and normally takes place at the end of February or the beginning of March.

Extraordinary General Meetings may be convened upon the request of the Board, the auditors, or shareholders representing at least 10% of the Novartis share capital.

Agenda

Shareholders representing Novartis shares with an aggregate nominal value of at least CHF 1 million may request that an item be included in a General Meeting agenda. Such requests must be made in writing at least 45 days before the meeting, specify the agenda item to be included, and contain the proposal on which the shareholder requests a vote.

Registration in the Novartis Share Register

The Novartis Share Register is an internal, non-public register subject to statutory confidentiality, and privacy and data protection imposed on Novartis to protect registered shareholders. Novartis shares can only be voted if they are registered with voting rights in such register by the third business day before the General Meeting.
**Change-of-control and defense measures**

**Duty to make an offer**

According to the Swiss Federal Act on Financial Infrastructures, anyone who – directly, indirectly or acting in concert with third parties – acquires equity securities exceeding 33 1/3% of the voting rights of a company (whether or not such rights are exercisable) is required to make an offer to acquire all listed equity securities of that company. A company may raise this threshold up to 49% of the voting rights ("opting up") or may, under certain circumstances, waive the threshold ("opting out"). Novartis AG has not adopted any such measures.

**Clauses on change of control**

In accordance with good corporate governance and the rules of the Ordinance against Excessive Compensation in Listed Companies, there are no change-of-control clauses and “golden parachute” agreements benefiting Board members, Executive Committee members, or other members of senior management. Furthermore, employment contracts with Executive Committee members are either for a fixed term not exceeding one year or for an indefinite period of time with a notice period not exceeding 12 months, and do not contain commissions for the acquisition or transfer of enterprises or severance payments.
Auditors

Duration of the mandate and terms of office of the auditors

Based on a recommendation by the Audit and Compliance Committee, the Board nominates an independent auditor for election at the AGM. PricewaterhouseCoopers (PwC) assumed its existing auditing mandate for Novartis in 1996. Luc Schulthess, auditor in charge, began serving in his role in 2018, and Stephen Johnson, global relationship partner, began serving in his role in 2014. The Audit and Compliance Committee together with PwC ensures that these partners are rotated at least every five years.

Auditing fees and additional fees

PwC fees for professional services related to the 12-month periods ended December 31, 2018, and December 31, 2017, are as follows:

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<thead>
<tr>
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<th>2018 USD million</th>
<th>2017 USD million</th>
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<tbody>
<tr>
<td>Audit services</td>
<td>25.6</td>
<td>24.6</td>
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<tr>
<td>Audit-related services</td>
<td>13.4</td>
<td>7.2</td>
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<tr>
<td>Tax services</td>
<td>0.7</td>
<td>0.8</td>
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<tr>
<td>Other services</td>
<td>2.4</td>
<td>1.4</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>42.1</strong></td>
<td><strong>34.0</strong></td>
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Audit services include work performed to issue opinions on consolidated financial statements and parent company financial statements of Novartis AG, to issue opinions related to the effectiveness of the Group’s internal control over financial reporting, and to issue reports on local statutory financial statements. Also included are audit services that generally can only be provided by the statutory auditor, such as the audit of the Compensation Report, audits of the adoption of new accounting policies, audits of information systems and the related control environment, as well as reviews of quarterly financial results.

Audit-related services include other assurance services provided by the independent auditor but not restricted to those that can only be provided by the statutory auditor. They include services such as audits of pension and other employee benefit plans, audits in connection with non-recurring transactions, including audit services related to the Alcon strategic review, contract audits of third-party arrangements, corporate responsibility assurance, and other audit-related services.

Tax services represent tax compliance, assistance with historical tax matters, and other tax-related services.

Other services include procedures related to corporate integrity agreements, training in the finance area, benchmarking studies, and license fees for use of accounting and other reporting guidance databases.

Information to the Board and the Audit and Compliance Committee

The Audit and Compliance Committee, acting on behalf of the Board, is responsible for overseeing the activities of PwC. In 2018, this committee held seven meetings. PwC was invited to all of these meetings to attend the discussions on auditing matters and any other matters relevant to its audit.

The Audit and Compliance Committee recommended to the Board to approve the audited consolidated financial statements and the separate parent company financial statements of Novartis AG for the year ended December 31, 2018. The Board proposed the acceptance of these financial statements for approval by the shareholders at the next AGM.

The Audit and Compliance Committee regularly evaluates the performance of PwC and, based on this, once a year determines whether PwC should be proposed to the shareholders for election. To assess the performance of PwC, the Audit and Compliance Committee holds private meetings with the CFO and the Global Head of Novartis Business Assurance & Advisory/Internal Audit and, if necessary, obtains an independent external assessment. Criteria applied for the performance assessment of PwC include an evaluation of its technical and operational competence; its independence and objectivity; the sufficiency of the resources it has employed; its focus on areas of significant risk to Novartis; its willingness to probe and challenge; its ability to provide effective, practical recommendations; and the openness and effectiveness of its communications and coordination with the Audit and Compliance Committee, the Internal Audit function and management.

Once a year, the auditor in charge and the global relationship partner report to the Board on PwC’s activities during the current year and on the audit plan for the coming year.

On an annual basis, PwC provides the Audit and Compliance Committee with written disclosures required by the US Public Company Accounting Oversight Board, and the committee and PwC discuss PwC’s independence from Novartis.
Information policy

Novartis is committed to open and transparent communication with shareholders, financial analysts, customers, suppliers and other stakeholders. Novartis disseminates information about material developments in its businesses in a broad and timely manner that complies with the rules of the SIX Swiss Exchange and the NYSE.

Shareholder relations

The CEO, with the CFO and Investor Relations team, supported by the Chairman, are responsible for ensuring effective communication with shareholders to keep them informed of the Company's strategy, prospects, business operations and governance. Through communication, the Board also learns about and addresses shareholders' expectations and concerns.

Topics discussed with shareholders may include strategy, business performance and corporate governance, while fully respecting all applicable laws and stock exchange rules.

At the AGM, the Chairman and other Board members, the CEO and other Executive Committee members, and representatives of the external auditors are present and can answer shareholders' questions.

Information for our stakeholders

Communications

Novartis publishes this Annual Report to provide information on the Group's results and operations. Novartis discloses financial results in accordance with IFRS on a quarterly basis, and issues press releases from time to time regarding business developments.


Novartis also publishes a Novartis in Society report, available on the Novartis website at www.novartis.com/our-company/corporate-responsibility, which details progress and demonstrates the Company's commitment to be a leader in corporate responsibility. This report reflects the best-in-class reporting standard, the Global Reporting Initiative's G4 guidelines, and fulfills the Company's reporting requirement as a signatory of the UN Global Compact.

Information contained in reports and releases issued by Novartis is only correct and accurate at the time of release. Novartis does not update past releases to reflect subsequent events, and advises against relying on them for current information.

Investor Relations program

Investor Relations manages the Group’s interactions with the international financial community. Several events are held each year to provide institutional investors and analysts with various opportunities to learn more about Novartis.

Investor Relations is based at the Group's headquarters in Basel. Part of the team is located in the US to coordinate interaction with US investors. More information is available on the Novartis website:
www.novartis.com/investors. Investors are also welcome to subscribe to a free email service on this site.

Website information

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<th>Topic</th>
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