Novartis International AG
Novartis Global Communications
CH-4002 Basel
Switzerland

http://www.novartis.com

**MEDIA RELEASE • COMMUNIQUE AUX MEDIAS • MEDIENMITTEILUNG**

# Novartis Kisqali significantly extends life in women with HR+/HER2- advanced breast cancer in MONALEESA-7 trial

- *Kisqali is the only CDK4/6 inhibitor to show superior overall survival in advanced breast cancer (HR=0.712; p=0.00973)*[1]
- *After a median of 42 months follow-up, the survival rate was 70.2% for women who received Kisqali combination therapy compared to 46.0% for women who received endocrine therapy alone*[1]
- *Advanced breast cancer in premenopausal women is the leading cause of cancer death in women 20-59 years old*[2,3]
- *MONALEESA-7 overall survival results will be presented as a late-breaker at the 2019 ASCO Annual Meeting and will be published in* The New England Journal of Medicine

**Basel, June 1, 2019 –** Novartis today announced statistically significant overall survival (OS) results for Kisqali in combination with endocrine therapy[1]. The Phase 3 MONALEESA-7 trial evaluated Kisqali plus endocrine therapy (goserelin plus either an aromatase inhibitor or tamoxifen) as initial treatment compared to endocrine therapy alone in pre- and perimenopausal women with hormone receptor positive, human epidermal growth factor receptor-2 negative (HR+/HER2-) advanced or metastatic breast cancer[1]. MONALEESA-7 overall survival results will be featured in a press briefing today, presented as a late-breaker at the 2019 American Society of Clinical Oncology (ASCO) Annual Meeting (Abstract# LBA1008), and will be published in *The New England Journal of Medicine.*

The significant extension in survival met the early efficacy stopping criteria at a pre-specified interim analysis following 192 deaths (median OS, not reached vs. 40.9 [95% CI: 37.8-NE] months; HR=0.712 [0.535-0.948]; p=0.00973). Overall survival rates in the intent-to-treat population (n=672) at 42 months were 70.2% for Kisqali combination therapy compared to 46.0% for endocrine therapy alone. At the time of data cut-off, 35% of women taking Kisqali combination therapy were continuing the treatment. No new safety signals were observed[1]. Kisqali is not indicated for use with tamoxifen.

“Overall survival benefit is considered the ‘gold standard’ in cancer trials but is challenging to achieve in HR+/HER2- metastatic breast cancer. MONALEESA-7 reached this important endpoint earlier than anticipated,” said Sara Hurvitz, MD, Medical Director of the Jonsson Comprehensive Cancer Center Clinical Research Unit and Director of the Breast Cancer Clinical Trials Program at UCLA. “Impactful results like these ribociclib findings are what we wish for in every clinical trial, and to achieve overall survival improvement in an incurable disease, like metastatic breast cancer, is truly an outstanding advancement for patients.”

Susanne Schaffert, Ph.D., CEO, Novartis Oncology, added, “Kisqali is the only CDK4/6 inhibitor to achieve statistically significant overall survival benefit in combination with endocrine therapy, and we are so proud to share these powerful data with the medical and patient community. These exciting results add to the proven efficacy and safety profile of Kisqali, solidify it as a standard of care for people living with HR+/HER2- metastatic breast cancer and inspire us to continue to reimagine medicine.”

Results from subgroup analyses showed that Kisqali plus an aromatase inhibitor demonstrated a 30.0% reduced risk of death compared to an aromatase inhibitor alone (median OS not reached vs. 40.7 months [37.4-NE]; HR=0.699 [0.501-0.976]), and Kisqali plus tamoxifen demonstrated a 20.9% reduced risk of death compared to tamoxifen alone (HR=0.791 [0.454-1.377])[1]. Kisqali is not indicated for use with tamoxifen. In the MONALEESA-7 primary analysis, increase in QTcF was on average greater and equal to 10 milliseconds in people taking tamoxifen plus placebo compared those taking aromatase inhibitor and placebo[4].

“Kisqali has characteristics that make it distinct from other CDK4/6 inhibitors. For one, Kisqali shows especially strong inhibition against CDK4. In pre-clinical data, Kisqali is four- to five-fold more potent against CDK4 compared to CDK6. CDK4 is likely the dominant CDK in breast cancer and a pivotal driver of disease progression,” said Jeff Engelman, MD, Global Head of Oncology Research, Novartis Institutes for BioMedical Research.

MJ DeCoteau, Executive Director of Rethink Breast Cancer, said, “Younger women living with advanced breast cancer encounter unique challenges as they face an incurable illness at the prime of their lives – they may be students, new moms or just embarking on their careers. Breast cancer is the leading cause of cancer death in women 20-59, so knowing an approved treatment has been proven to help them live longer is an outstanding advancement and provides new hope for women with this devastating disease.”

**About Kisqali® (ribociclib)**
Kisqali® (ribociclib) is the CDK4/6 inhibitor with the largest body of first-line clinical trial evidence demonstrating consistent and sustained efficacy compared to endocrine therapy alone[5]. Kisqali is the only targeted therapy, including CDK4/6 inhibitors, in combination with endocrine therapy to demonstrate significantly longer overall survival compared to endocrine therapy alone as initial endocrine-based treatment for advanced breast cancer in the MONALEESA-7 trial[5]. Overall survival follow-up is ongoing for the Phase III MONALEESA-2 and MONALEESA-3 trials.

Novartis is continuing to reimagine cancer by investigating Kisqali in early breast cancer. The NATALEE study is a Phase III clinical trial of Kisqali with endocrine therapy in the adjuvant treatment of HR+/HER2- early breast cancer being conducted in collaboration with Translational Research In Oncology (TRIO)[5].

Kisqali is approved for use in more than 75 countries around the world, including the United States and European Union member states. Kisqali was initially approved by the US Food and Drug Administration (FDA) in March 2017 and by the European Commission (EC) in August 2017, as initial endocrine-based therapy for postmenopausal women with HR+/HER2- locally advanced or metastatic breast cancer in combination with an aromatase inhibitor based on findings from the pivotal MONALEESA-2 trial. Kisqali in combination with an aromatase inhibitor was approved for the treatment of pre-, peri- or postmenopausal women as initial endocrine based therapy, and also indicated for use in combination with fulvestrant as both first- or second-line therapy in postmenopausal women by the FDA in July 2018 and by the EC in December 2018. Regulatory filings are underway with other health authorities worldwide[5].

Kisqali was developed by the Novartis Institutes for BioMedical Research (NIBR) under a research collaboration with Astex Pharmaceuticals[5].

**About Novartis in Advanced Breast Cancer**
Novartis tackles breast cancer with superior science, collaboration and a passion for transforming patient care. We’ve taken a bold approach to our research by including patient populations often neglected in clinical trials, identifying new pathways or mutations that may

play a role in disease progression and developing therapies that not only maintain, but also improve, quality of life for patients. Our priority over the past 30 years and today is to deliver treatments proven to improve and extend lives for those diagnosed with advanced breast cancer.

**Important Safety Information FROM THE KISQALI EU SmPC**
KISQALI® (ribociclib) is a prescription medicine approved in combination with an aromatase inhibitor as initial endocrine - based therapy in women with hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative advanced or metastatic breast cancer or fulvestrant as initial endocrine - based therapy or following disease progression on endocrine therapy in postmenopausal women with hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative advanced or metastatic breast cancer. It is not known if KISQALI is safe and effective in children or adolescents. KISQALI can cause a heart problem known as QT prolongation. This condition can cause an abnormal heartbeat and may lead to death. KISQALI is not indicated for concomitant use with tamoxifen due to an increased risk of QT prolongation. Patients should tell their health care provider right away if they have a change in their heartbeat (a fast or irregular heartbeat), or if they feel dizzy or faint. KISQALI can cause serious liver problems. Patients should tell their health care provider right away if they get any of the following signs and symptoms of liver problems: yellowing of the skin or the whites of the eyes (jaundice), dark or brown (tea-colored) urine, feeling very tired, loss of appetite, pain on the upper right side of the stomach area (abdomen), and bleeding or bruising more easily than normal. Low white blood cell counts are very common when taking KISQALI and may result in infections that may be severe. Patients should tell their health care provider right away if they have signs and symptoms of low white blood cell counts or infections such as fever and chills. Before taking KISQALI, patients should tell their health care provider if they are pregnant, or plan to become pregnant as KISQALI can harm an unborn baby. Females who are able to become pregnant and who take KISQALI should use highly effective birth control during treatment and for at least 3 weeks after the last dose of KISQALI. Do not breastfeed during treatment with KISQALI and for at least 3 weeks after the last dose of KISQALI. Patients should tell their health care provider about all of the medicines they take, including prescription and over-the-counter medicines, vitamins, and herbal supplements since they may interact with KISQALI. Patients should avoid grapefruit or grapefruit juice while taking KISQALI. The most common side effects (incidence >=20%) include infections, white blood cell count decreases, headache, cough, nausea, tiredness, diarrhea, vomiting, constipation, hair loss and rash. The most common Grade 3/4 side effects (incidence >5%) were infections, low neutrophils, low leukocytes, low red blood cells, abnormal liver function tests, low lymphocytes, low phosphate levels and vomiting. Abnormalities were observed in hematology and clinical chemistry laboratory tests.

Please see full Prescribing Information for KISQALI, available at www.kisqali.com.

**Disclaimer**
This press release contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995. Forward-looking statements can generally be identified by words such as “potential,” “can,” “will,” “plan,” “expect,” “anticipate,” “look forward,” “believe,” “committed,” “investigational,” “pipeline,” “launch,” or similar terms, or by express or implied discussions regarding potential marketing approvals, new indications or labeling for the investigational or approved products described in this press release, or regarding potential future revenues from such products. You should not place undue reliance on these statements. Such forward-looking statements are based on our current beliefs and expectations regarding future events, and are subject to significant known and unknown risks and uncertainties. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those set forth in the forward-looking statements. There can be no guarantee that the investigational or approved products described in this press release will be submitted or approved for sale or for

any additional indications or labeling in any market, or at any particular time. Nor can there be any guarantee that such products will be commercially successful in the future. In particular, our expectations regarding such products could be affected by, among other things, the uncertainties inherent in research and development, including clinical trial results and additional analysis of existing clinical data; regulatory actions or delays or government regulation generally; global trends toward health care cost containment, including government, payor and general public pricing and reimbursement pressures and requirements for increased pricing transparency; our ability to obtain or maintain proprietary intellectual property protection; the particular prescribing preferences of physicians and patients; general political and economic conditions; safety, quality or manufacturing issues; potential or actual data security and data privacy breaches, or disruptions of our information technology systems, and other risks and factors referred to in Novartis AG's current Form 20-F on file with the US Securities and Exchange Commission. Novartis is providing the information in this press release as of this date and does not undertake any obligation to update any forward-looking statements contained in this press release as a result of new information, future events or otherwise.

**About Novartis**

Novartis is reimagining medicine to improve and extend people's lives. As a leading global medicines company, we use innovative science and digital technologies to create transformative treatments in areas of great medical need. In our quest to find new medicines, we consistently rank among the world's top companies investing in research and development. Novartis products reach more than 750 million people globally and we are finding innovative ways to expand access to our latest treatments. About 105 000 people of more than 140 nationalities work at Novartis around the world. Find out more at www.novartis.com.

Novartis is on Twitter. Sign up to follow @Novartis at http://twitter.com/novartis
For Novartis multimedia content, please visit www.novartis.com/news/media-library
For questions about the site or required registration, please contact media.relations@novartis.com

**References**


1. Hurvitz S, Seock-Ah I, Yen-Shen L et al. Phase III MONALEESA-7 trial of premenopausal patients with HR+/HER2− advanced breast cancer (ABC) treated with endocrine therapy ± ribociclib: Overall survival (OS) results. Presented at the 2019 ASCO Meeting, June 1, 2019, Abstract# LBA 1008.
2. Benz CC. Impact of aging on the biology of breast cancer. Crit Rev Oncol Hematol. 2008;66:65-74.
3. World Health Organization. Top cancer per country, estimated age-standardized mortality rates (World) in 2018, females, all ages. 2018. Available at http://gco.iarc.fr/today/home. Accessed May 2019.
4. Tripathy D, Sohn J, Im S, et al. First-line ribociclib or placebo combined with goserelin and tamoxifen or a non-steroidal aromatase inhibitor in premenopausal women with hormone receptor-positive, HER2-negative advanced breast cancer: results from the randomized Phase III MONALEESA-7 trial. Presented at the San Antonio Breast Cancer Symposium (SABCS), December 6, 2017, (Abstract #S2-05).
5. Novartis Data on File.


# # #

**Novartis Media Relations**
E-mail: media.relations@novartis.com

Julie Masow
Novartis Oncology Media Relations
+1 862 778 7220 (direct)
+1 862 579 8456 (mobile)
julie.masow@novartis.com

Eric Althoff
Novartis US External Communications
+1 646 438 4335
eric.althoff@novartis.com

**Novartis Investor Relations**
Central investor relations line: +41 61 324 7944
E-mail: investor.relations@novartis.com

| Central | | North America | |
|---|---|---|---|
| Samir Shah | +41 61 324 7944 | Richard Pulik | +1 862 778 3275 |
| Pierre-Michel Bringer | +41 61 324 1065 | Cory Twining | +1 862 778 3258 |
| Thomas Hungerbuehler | +41 61 324 8425 | | |
| Isabella Zinck | +41 61 324 7188 | | |