Novartis Pharmaceuticals

Novartis Pharmaceuticals: Driving Growth

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Agenda

1. **Novartis Pharmaceuticals: Driving growth**
2. Entresto® and Cosentyx®
3. New Launches

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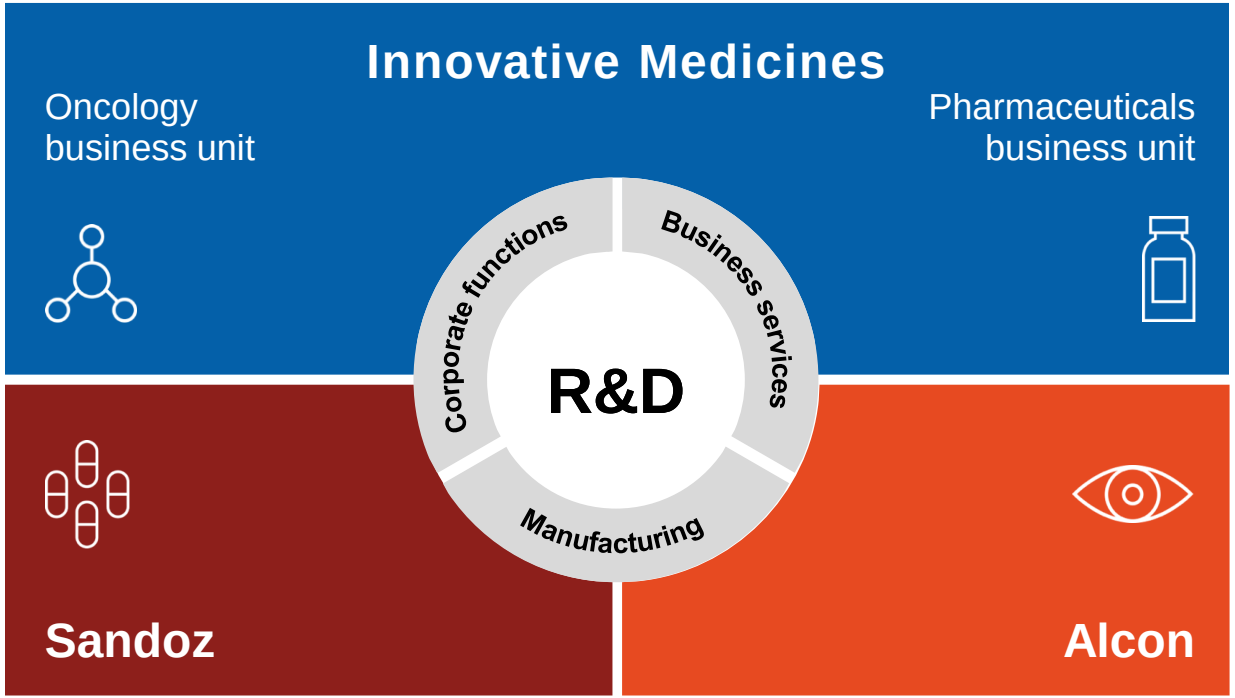
Novartis Group: Focused businesses fueled by innovation and functional excellence



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Novartis Pharmaceuticals: A key growth driver for the Group

Pharmaceuticals BU

USD billion	Q3 2017	% change USD	% change cc
Net Sales	**5.2**	**5**	**6**

31 000 associates work across **5** core therapeutic areas

- Immunology & Dermatology
- Cardio-Metabolic
- Ophthalmology
- Neuroscience
- Respiratory

Growth rates in constant currencies (cc) vs. prior year (PY). Constant currencies, core results and free cash flow are non-IFRS measures. An explanation of these measures can be found on page 44 of the Q3 Condensed Interim Financial Report.

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Five core therapeutic areas with strong momentum and therapeutic depth

	Immunology Dermatology (I&D)	Cardio-Metabolic (CM)	Ophthalmology	Neuroscience	Respiratory	
Key assets Net sales 9 months to Sept 30, 2017 (USD m) and growth vs. PY (in cc)	Cosentyx® secukinumab 1,456 (+98%)	Entresto® sacubitril/valsartan 322 (+215%)	LUCENTIS RANIBIZUMAB 1,403 (+4%)	GILENYA® (fingolimod) 2,360 (+3%)	Xolair® omalizumab 673[1] (+12%)	ultibro® breezhaler 291 (+8%)
Late stage pipeline assets	Cosentyx® (NrAxSpA)	Entresto® (pEF) ACZ885 (canakinumab)	RTH258 (brolucizumab)	AMG 334 (erenumab) BAF312 (siponimod) OMB157 (ofatumumab)	QAW039 (fevipiprant) QVM149	

1. Net sales reflect Xolair® sales for all indications (e.g. including Xolair® SAA and Xolair® CSU, which is managed by the Immunology and Dermatology franchise).

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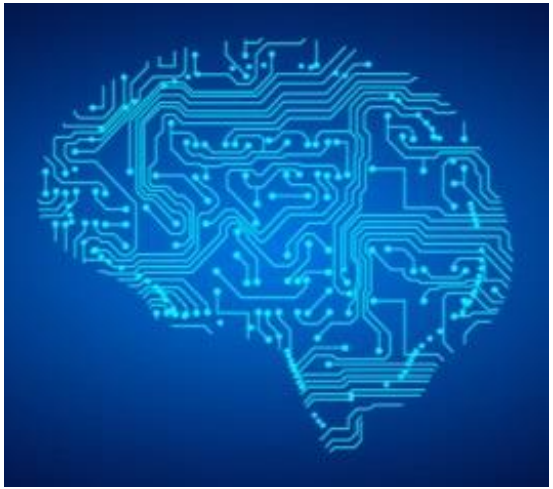
We are strengthening our portfolio through targeted business development

Expanding current TA with new MOAs	ZIARCO **ZPL389**	ENCORE VISION Restoring Near Focus **UNR844 (EV06)**	LUBRIS BIOPHARMA **ECF843 (rh-Lubricin)[1]**	IONIS PHARMACEUTICALS / AKCEA THERAPEUTICS **APO(a)-L_{RX} / APOCIII-L_{Rx}[2]**
Expanding into new Therapeutic Areas	Conatus Pharmaceuticals **Emricasan[3]**	Allergan **Cenicriviroc collaboration**		
Expanding geographic scope	AMGEN **AMG 334 US co-commercialization[4]**			

Note: All trademarks are the property of their respective owners. 1. Option exercised April 2017 for exclusive ex-EU rights 2. Option to in-license 3. Option exercised May 2017 4. Novartis and Amgen to co-commercialize AMG 334 (erenumab) in the US; Novartis to gain exclusive rights in Canada. Novartis retains commercial rights in rest of world; Amgen retains commercial rights in Japan

Driving operational excellence through data and advanced analytics



Commercial data – a strategic asset

- Advanced analytics and data science leveraged to get the real insights
- Adaptive and evidence-based commercial model, with continuous learning
- Connected framework for how we go to customers

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Pharmaceuticals: Our priorities

1. Ensure Entresto® and Cosentyx® success
2. Prepare for data read-outs and new launches
3. Excellence in Execution
4. Culture

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Agenda

1. Novartis Pharmaceuticals: Driving growth
2. **Entresto® and Cosentyx®**
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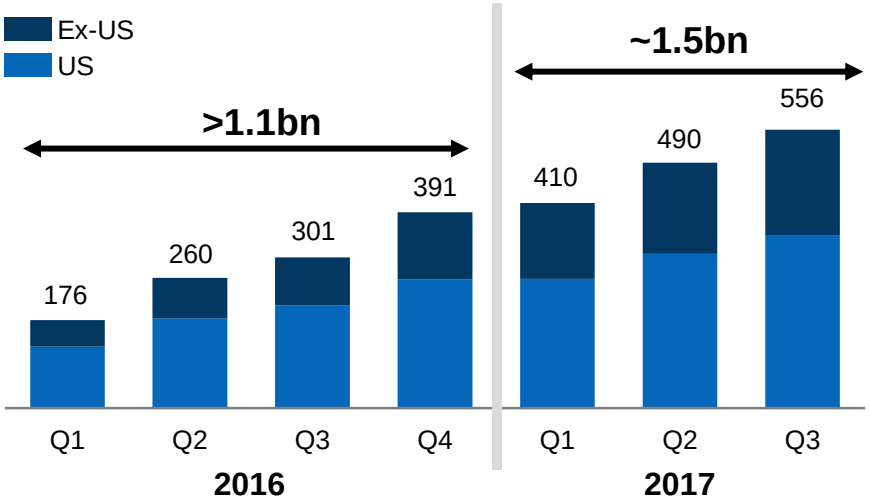
Cosentyx®: Strong growth momentum across indications and geographies

Quarterly sales evolution

USD million



- Worldwide Q3 sales of USD 556m
- Strong growth driven by US and Europe, across all indications
- Established US NBRx leadership in PsA / AS, leading anti-IL17 in PsO[1]

1. Source: IMS weekly NBRx data (restated as of week ending August 11, 2017 to include Cosentyx® free drug access program), week ending September 29, 2017

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Cosentyx®: Strong differentiation based on unique biology

Inhibition of IL-17A, a key inflammatory cytokine, is fundamental

Psoriasis[1-9]

- Superiority to anti-TNF (Enbrel®) and Stelara®
- Sustained control of signs and symptoms (5-year landmark data)
- Strong data in joints (in psoriatic arthritis, ~ 1/3 of psoriasis population) and hard-to-treat manifestations
- Potential for disease modification

Spondyloarthritis (PsA and AS)[10-19]

- Sustained control of signs and symptoms
- High level of enthesitis resolution
- No radiographic progression in psoriatic arthritis and ankylosing spondylitis
- Further building the evidence with ongoing studies, incl. nrAxSpA

Fully human molecule with very low immunogenicity[20,21], very low injection site reactions[1]

1. Langley R, et al. NEJM 2014;371:326 2. Blauvelt A, et al. JAAD 2016 [ePub ahead of print] 3. Thaci D, et al. JAAD, 2015; 73, 3, 400–409 4. Seminars in Cutaneous Medicine and Surgery (Supplement 7), Vol. 35, December 2016; 5. Bisonette et al. Late Breaker Poster presentation, EADV 2016 6 Bissonnette R., et al. late breaking abstract at EADV; September 13, 2017 7. Bagel J et al. JAAD 2017;77:667-674 8. Gottlieb A et al. JAAD 2017;76:70-80 9. Reich K et al. Ann Rheum Dis2016;75;suppl2 9 Lebwohl M et al. Long-term psoriasis control following secukinumab discontinuation indicated disease modification of moderate to severe psoriasis. Presented as a poster presentation at the 13th Annual Maui Derm for Dermatologists 2017. 20-24th March 2017 10. Mease PJ, et al. NEJM 2015;373:1329–39 11. McInnes IB, et al. Lancet 2015;386:1137–46 12. Mease PJ, et al. Ann Rheum Dis 2017;76 (suppl 2):952 13. McInnes IB, et al. Rheumatology 2017;56:1993–2003 14. Mease PJ, et al. Arthritis Rheumatol. 2017;69 (suppl 10):abstract 17L 15. Baeten D, et al. 2015;373:2534–48 16. Braun J, et al. . Arthritis Rheumatol. 2017;69 (suppl 10):abstract 3L 17. Marzo-Ortega H, et al. Arthritis Care Res (Hoboken). 2017;69:1020–9 18. https://clinicaltrials.gov/ct2/show/NCT02745080 19. https://clinicaltrials.gov/ct2/show/NCT03259074 20. Reich, K., et al. Br J Dermatol. 2017;176:752 21. Reich K, et al. PIN 2016. P224;. Enbrel® is a registered trademark of Immunex Corporation. Stelara® is a registered trademark of Johnson & Johnson.

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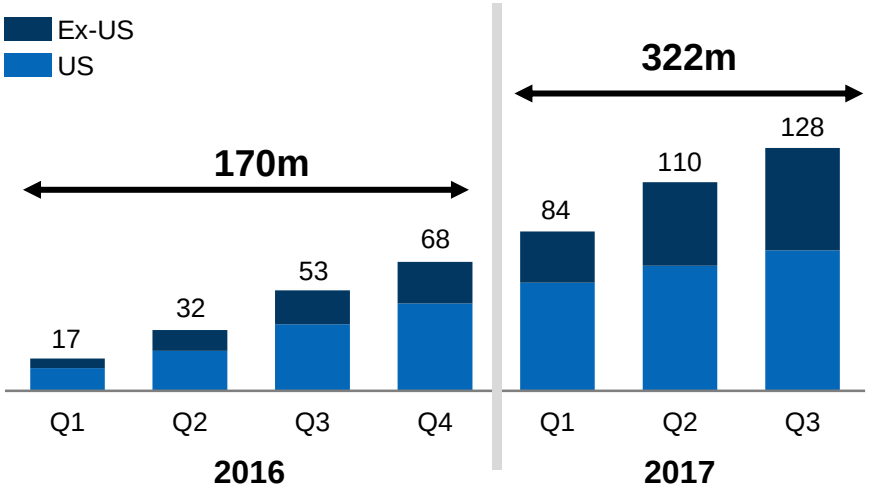
Entresto®: Progressing steadily, fueled by improved access and field force expansion

Quarterly sales evolution

USD million



- Worldwide Q3 sales of USD 128m
- US benefitting from improved access[1] and expanded field force
- Continued progress on access ex-US with Entresto® launched in >45 countries
- HF-pEF[2] expansion studies on track for filing in 2019

1. No Prior Authorization: 60% Medicare and 48% of Commercial segment 2. HF-pEF- heart failure with preserved ejection fraction

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Agenda

1. Pharmaceuticals: Driving growth
2. Entresto® and Cosentyx®
3. **New Launches**

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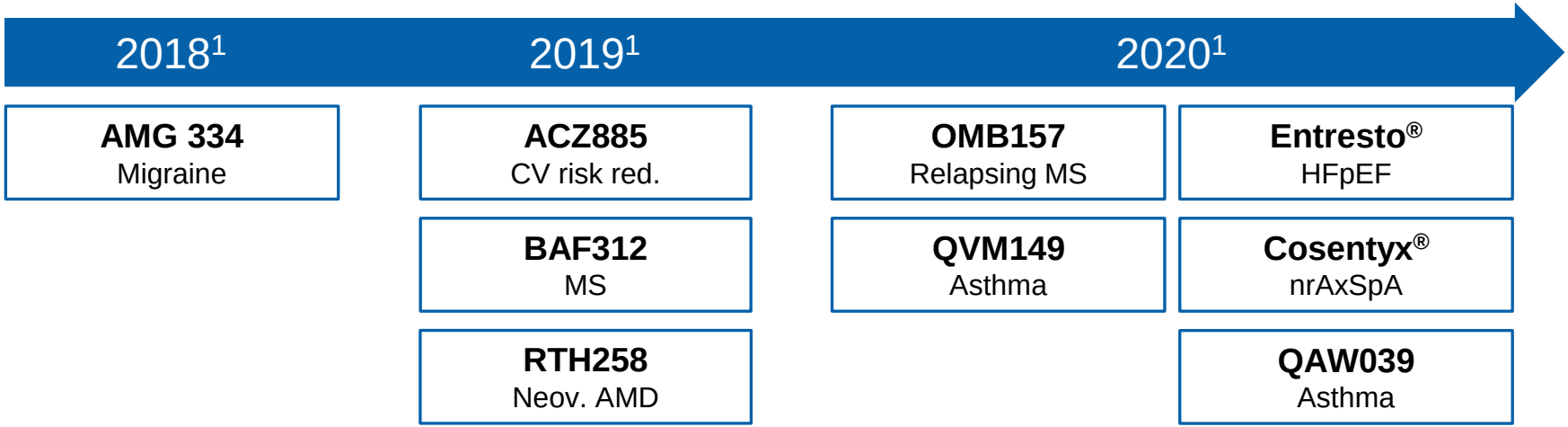
Full pipeline of late stage assets: Key expected launches in Pharmaceuticals



1. Exact launches and timing depends on filing date, HAs decisions and timelines.

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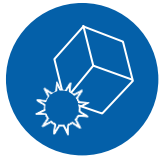
AMG 334 (erenumab): Potentially life-changing medication for a debilitating disease

Unique approach

- First and only mAb to target and block the CGRP-receptor
- Only fully human anti-CGRP mAb

Sustained and consistent prevention

- Chronic migraine patients on average gained one additional migraine-free week each month[1]
- At 1 year[2], 2/3 of episodic migraine patients had at least a 50% reduction in their migraine days with 1 out of 4 being completely migraine free



Unique & robust data package, even in the difficult to treat patients

- >2,600 patients; 5 year on-going extensions
- Strong efficacy in prior treatment failures, medication overuse patients

Placebo-like safety and tolerability

- Only anti-CGRP mAb to demonstrate it did not aggravate myocardial ischemia in a dedicated clinical study[3]
- Very low incidence of injection site reactions in AMG 334 and placebo groups

1. Tepper S, Lancet Neurology 16(6), June 2017, 425–434 2. Ashina M et al. Neurology 89 (12), 1237-1243, 2017 3. Depre C et al. Presented at IHC 2017, Vancouver Canada [PO-01-198]

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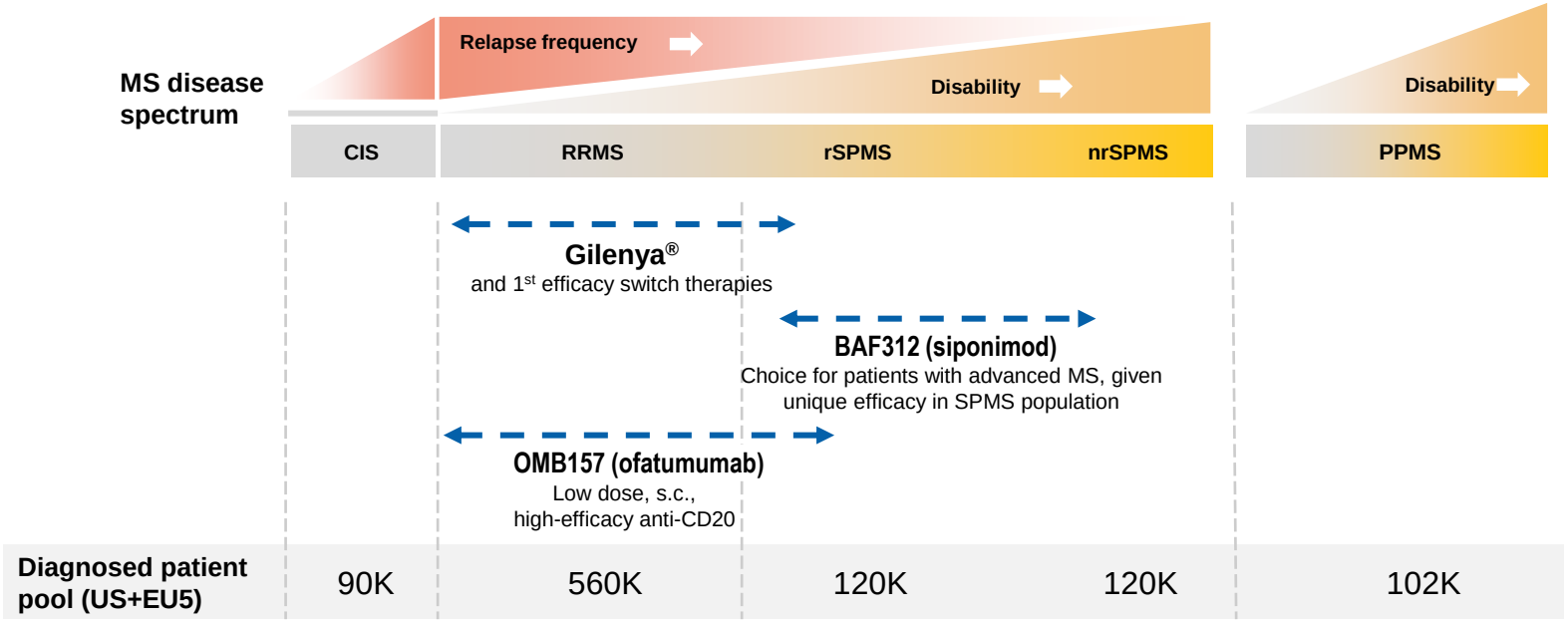
BAF312: Efficacy in SPMS creates opportunity to address an unmet need in more advanced patients



Diagnosed Patient pool derived from Decision Resources epi data; Atlas of MS, IMS actual volume sales, Quant SPMS MR 2016, Annette L, Sonu M. et. *al*. The incidence of clinically isolated syndrome in a multi-ethnic cohort. J Neurol (2014) 261:1349-1355. Roberto D'Alessandro, Risk of multiple sclerosis following clinically isolated syndrome: a 4-year prospective study, J Neurol (2013) 260:1583–1593

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ACZ885: Strong value proposition a pre-requisite for a biologic treatment in a post-MI/CV risk reduction setting

Targeting narrow, well defined population

- ACZ885 population is well defined as post-MI and elevated inflammation (hsCRP≥2 mg/L)
- ACZ885 responder population is targeted to the patients who benefit the most (1 injection and who achieve hsCRP < 2mg/L in 3 months)

Straightforward patient selection

- hsCRP test is low cost and easy to perform; 1st test to identify eligible patients and 2nd test to identify responders

Very significant magnitude of benefit in responders[1]

While CANTOS met its primary endpoint in reducing risk of MACE by 15% in the overall study population[2], the benefits were markedly greater in the responder population:

- 25% RRR in MACE (CV death, MI, stroke)
- 31% RRR in CV death alone

1. Ridker et al, Lancet 2017 [in press] : http://dx.doi.org/10.1016/S0140-6736(17)32814-3; Pooled dose analysis. 150mg arm also showed 25% RRR on MACE. 2. Ridker et al, NEJM 2017, DOI: 10.1056/NEJMoa1707914 MACE: CANTOS primary endpoint a composite of MI, Stroke and CV death MI: Myocardial Infarction, component of primary endpoint. Urgent revascularization procedures is a component of a statistically significant key secondary endpoint

ACZ885 is an investigational compound for cardiovascular risk reduction and has not been approved by any regulatory or health authority for cardiovascular risk reduction

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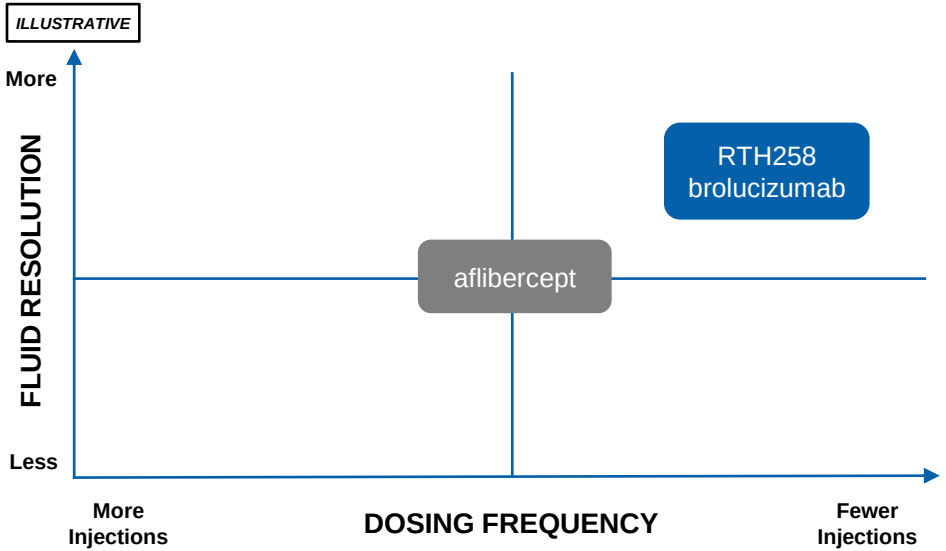
RTH258: Potential to address unmet needs vs. current therapies

- RTH258 (Brolucizumab) met the primary endpoint of non-inferiority vs. aflibercept in change in BCVA from baseline to Week 48[1]
- Significantly fewer patients treated with RTH258 showed signs of disease activity[1,2] as well as retinal fluids (IRF and/or SRF)[1,3]
- RTH258 delivered superior reductions in retinal thickness (CST) due to fluid accumulation versus aflibercept[1,3]
- Majority of RTH258 patients exclusively maintained on q12w dosing interval immediately following loading phase through week 48[1,4]



1. Dugel PU, et al. AAO 2017 [Oral presentation]. 2. Prespecified secondary endpoint in both HAWK and HARRIER with confirmatory analysis in HAWK (brolucizumab 6 mg vs aflibercept 2 mg). Week 16 disease activity assessed by: decrease in BCVA of > 5 letters compared with baseline, decrease in BCVA of > 3 letters and CST increase > 75µm compared with week 12, decrease in BCVA of > 5 letters due to neovascular AMD disease activity compared with week 12, new or worse intraretinal cysts (IRC) / intraretinal fluid (IRF) compared with week 12. 3. Prespecified secondary endpoint in both HAWK and HARRIER with confirmatory analysis in HAWK (brolucizumab 6 mg vs aflibercept 2 mg). 4. Prespecified secondary endpoint Illustration: Dosing regimen referenced according to label for aflibercept, brolucizumab based on q12w regime in HAWK & HARRIER; fluid resolution defined as presence of retinal fluids, key markers of disease activity (prespecified secondary endpoint in both HAWK and HARRIER with confirmatory analysis in HAWK; brolucizumab 6 mg vs aflibercept 2 mg).

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Pharmaceuticals: Driving Growth

1. Prioritizing to win in our core therapeutic areas
2. Demonstrating executional excellence through Cosentyx® and Entresto®
3. Poised for future growth, fueled by a strong late stage pipeline

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