

# Strategic Collaboration in Oncology

## Trastuzumab Deruxtecan (DS-8201)

Conference call for investors and analysts

29 March 2019



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# Speakers



**Pascal Soriot**  
Executive Director and  
Chief Executive Officer



**Dave Fredrickson**  
Executive Vice President,  
Oncology



**José Baselga**  
Executive Vice President,  
R&D Oncology



**Marc Dunoyer**  
Executive Director and  
Chief Financial Officer



# DS-8201: a transformative medicine

## AstraZeneca & Daiichi Sankyo collaboration to maximize utility and value

- Oncology is one of our 3 core strategic TAs, Breast Cancer one of our 4 oncology pillars
- Transformative medicine for the treatment of Breast Cancer
  - Taxane free\* treatment of HER2+ cancer
  - Potential use in HER2 low
  - Potential for additional tumour types e.g. Lung and Gastric
- AZ can add value to this important new medicine
  - Very experienced team in Oncology, with specific depth in Breast Cancer
  - Global footprint
- An asset with longevity that will provide strong growth to 2030+
- Transaction neutral to core earnings in 2019, growing core EPS accretion from 2020 to a significant contribution in 2023



# Building on our rich heritage in Breast Cancer

## Adds a late stage high value asset to our innovative pipeline



**2020s**  
Trastuzumab  
deruxtecan (DS-8201)

- Imfinzi
- Capivasertib
- Oral SERD

Sources: (1) FDA first approval history for each historical AstraZeneca asset, (2) expected 2H 2019 BLA submission to FDA for DS-8201 and (3) future BLA / sBLA / NDA submissions for other AZ pipeline assets



# High unmet medical need in HER2+, HER2 low and HER2 mutant tumours across multiple cancer types

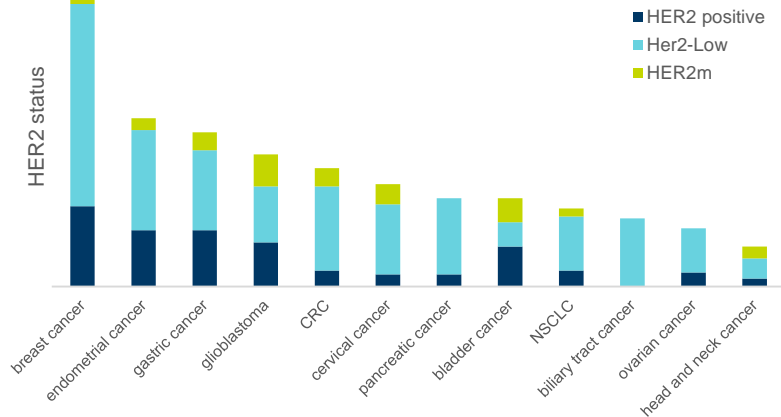
Potential transformational medicine  
Innovative and highly potent ADC molecule

**1** Taxane free\* treatment in HER2+ breast & gastric cancer

**2** Expand to HER2 low breast cancer

**3** Move to early disease & explore in other HER2 expressing tumours

Prevalence of HER2 status across cancer types



Current HER2+ breast, gastric market  
Opportunity in HER2 low

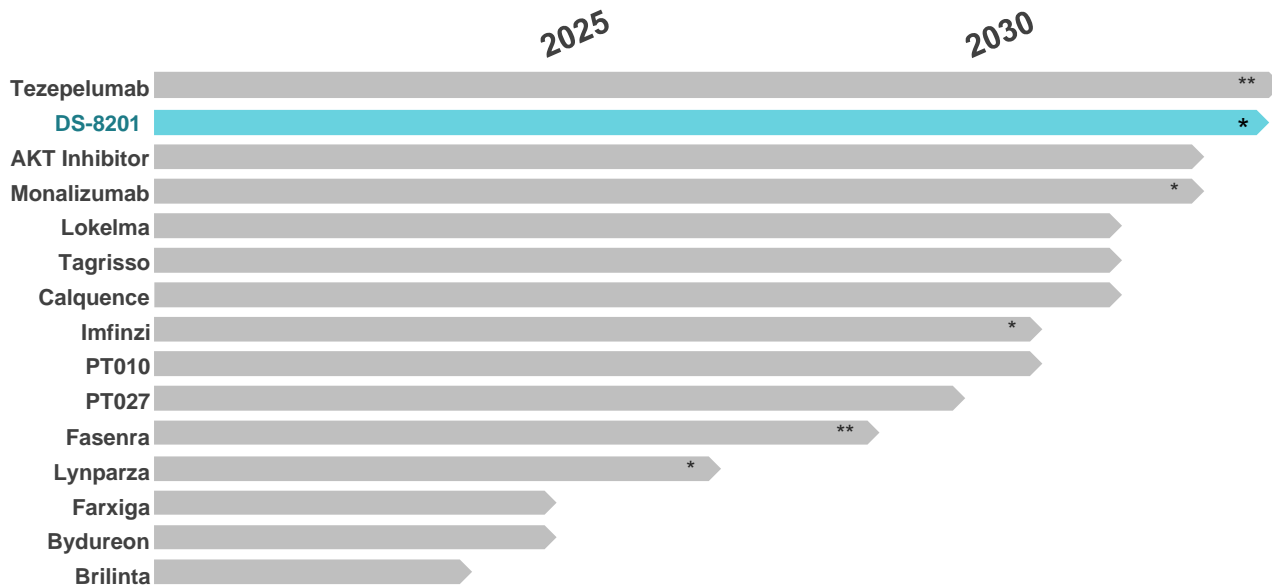
Notes: \*non-systemic chemotherapy

Source: (1) Literature review including Yan et al, 2014 & 2015, Connell et al, 2017, Peters et al, 2014, Sienna et al, 2018 and (2) Kantar CancerMpac database



# Trastuzumab deruxtecan (DS-8201)

## An innovative asset with longevity beyond 2030



Notes: \*Exclusivity period projected to extend beyond patent expiry due to patent restoration; \*\* Data exclusivity exceeds patent expiry.



# Speakers

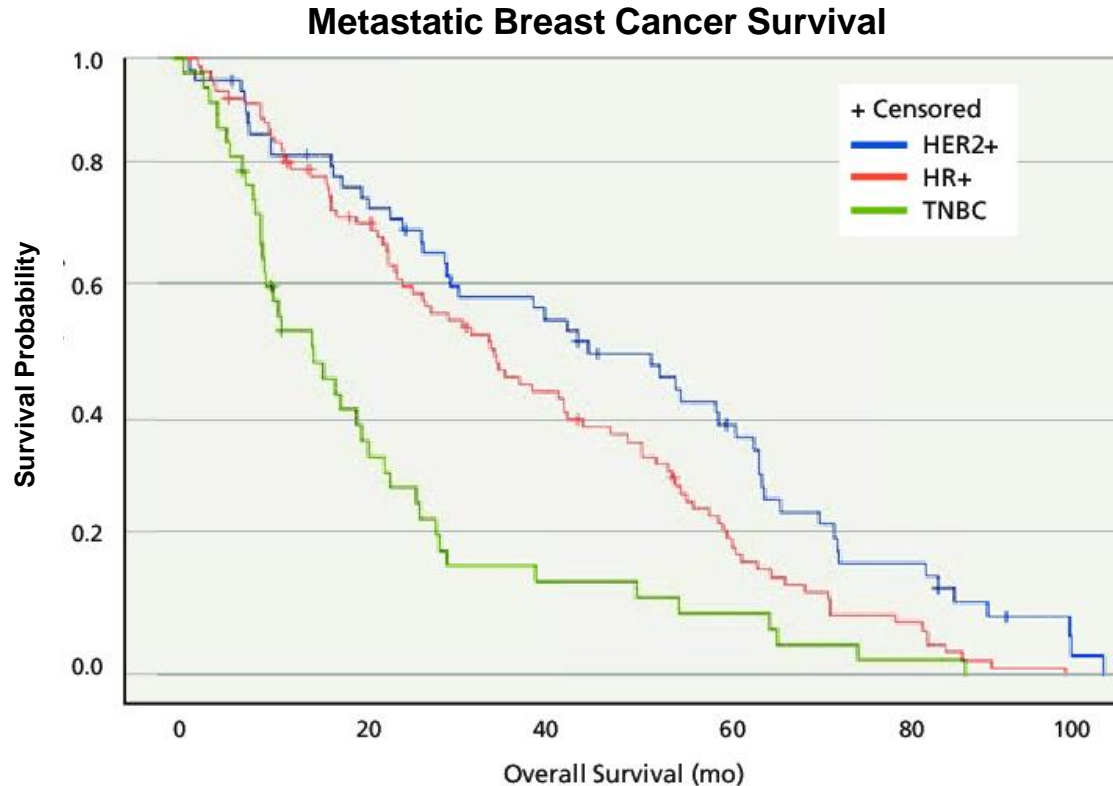


**José Baselga**  
Executive Vice President,  
R&D Oncology





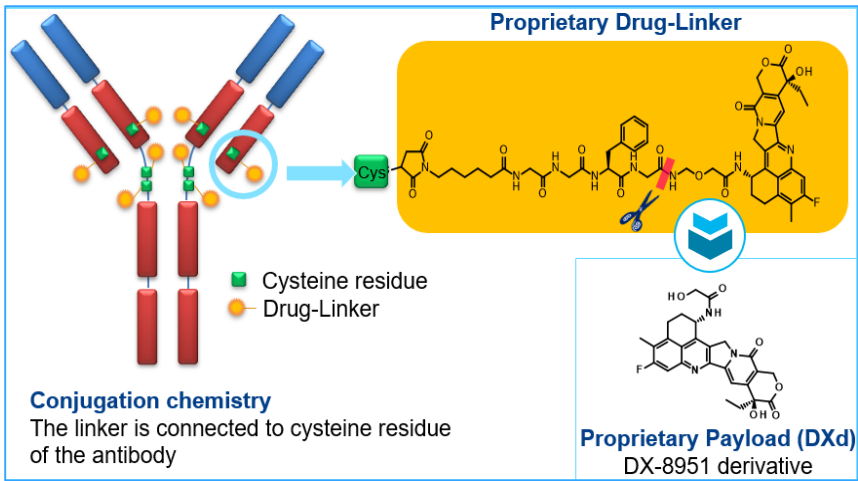
# Significant survival gains in HER2+ breast cancer, but substantial unmet need persists



# DS-8201: A State of the Art Second Generation ADC

## Designing Better Characteristics for Potentially Enhanced Clinical Benefit

### Drug Design Attributes




	DS-8201	T-DM1	Clinical Implications
<b>Payload</b>	Topoisomerase-1 inhibitor	Tubulin inhibitor	Validated topo-1 mechanism
<b>Drug antibody ratio</b>	High: 7-8	Low: 3-4	More drug delivery, greater tumor cell killing
<b>Payload Membrane permeability</b>	Highly membrane permeable → "bystander effect"	Membrane impermeable → no bystander effect	Kills neighboring heterogenous non-HER2 tumor cells (pH dependent topo-1 potency)

Sources: (1) Daiichi Sankyo's R&D Day December 2018, (2) T-DM1 FDA label and (3) Ogatani et al, 2016, Cancer Science for DS-8201 Bystander Killing effect

Notes: T-DM1 = trastuzumab emtansine;  
DS-8201 = trastuzumab deruxtecan



# DS-8201: Unprecedented efficacy in late line HER2+ metastatic breast cancer



**FDA**  
**BREAKTHROUGH**  
**THERAPY**

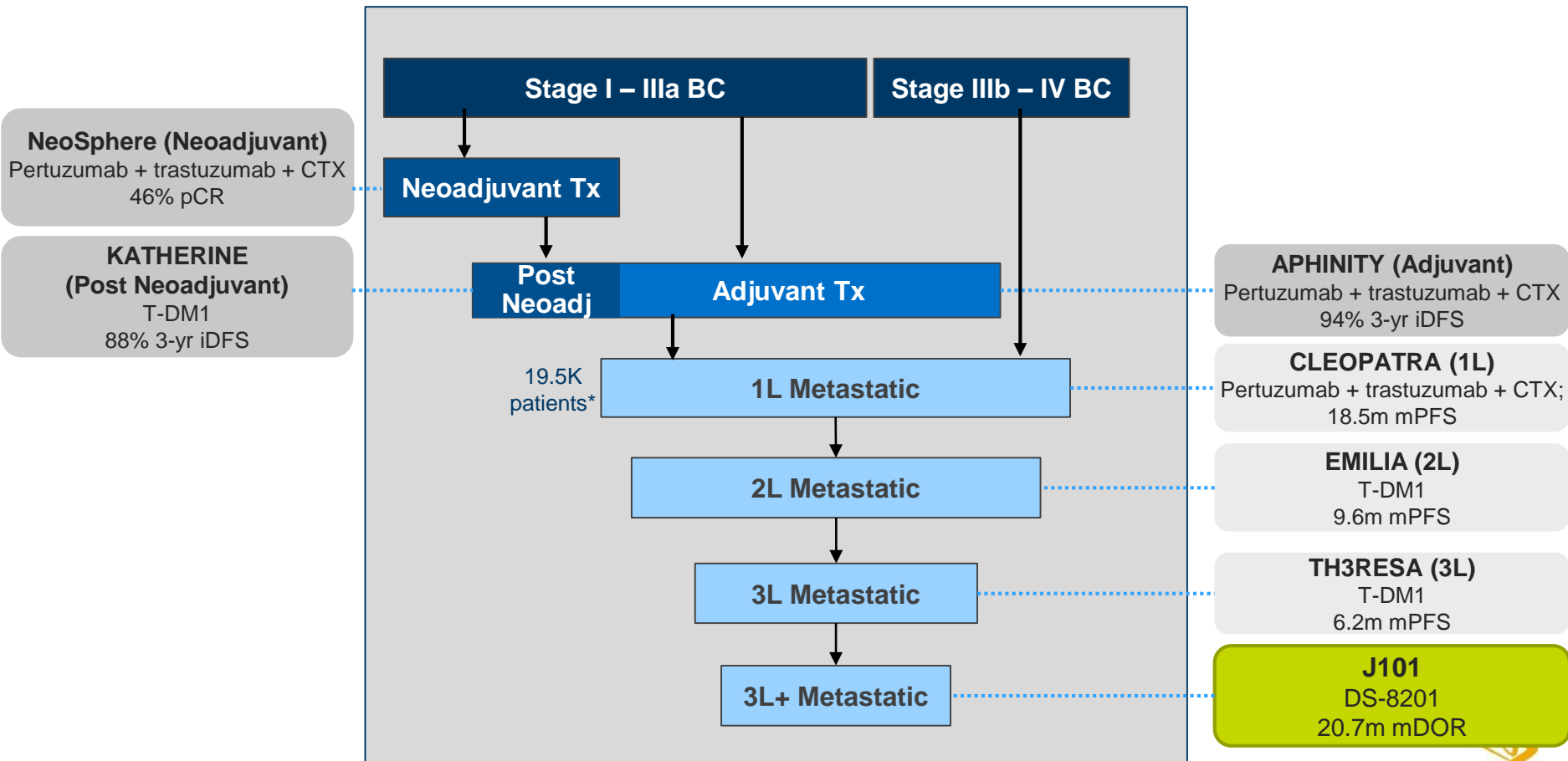
**DS-8201 (Aug '18 DCO)<sup>1</sup>**

	Pertuzumab + trastuzumab + chemo (1L) <sup>2</sup>	T-DM1 (1L, failed) <sup>3</sup>	T-DM1 (2L) <sup>4</sup>	T-DM1 (3L+) <sup>5</sup>	DS-8201 (Aug '18 DCO) <sup>1</sup>
mPFS	18.5m	14.1m	9.6m	6.2m	<b>Not published</b>
DoR	<b>20.2m</b>	<b>20.7m</b>	<b>12.6m</b>	<b>9.7m</b>	<b>20.7m</b>
ORR	<b>80.2%</b>	<b>59.7%</b>	<b>43.6%</b>	<b>31.3%</b>	<b>59.5%</b>
Median prior LoT for adv. disease	0	0	1	4	7 <sup>6</sup> 100% prior T-DM1 88% prior pertuzumab

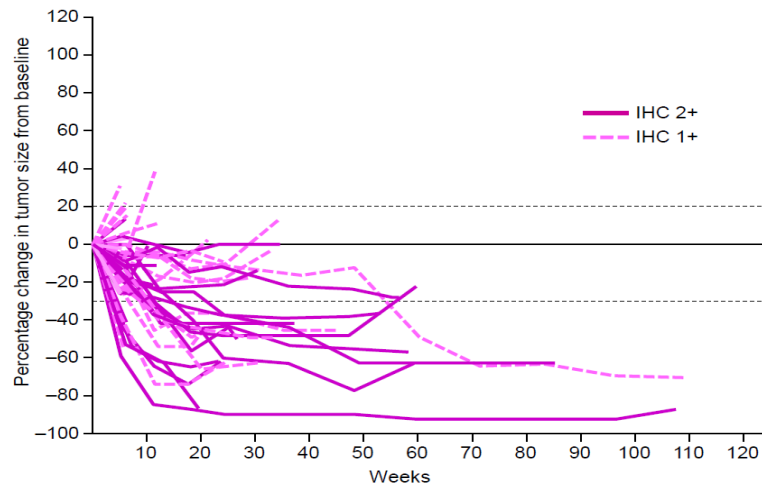
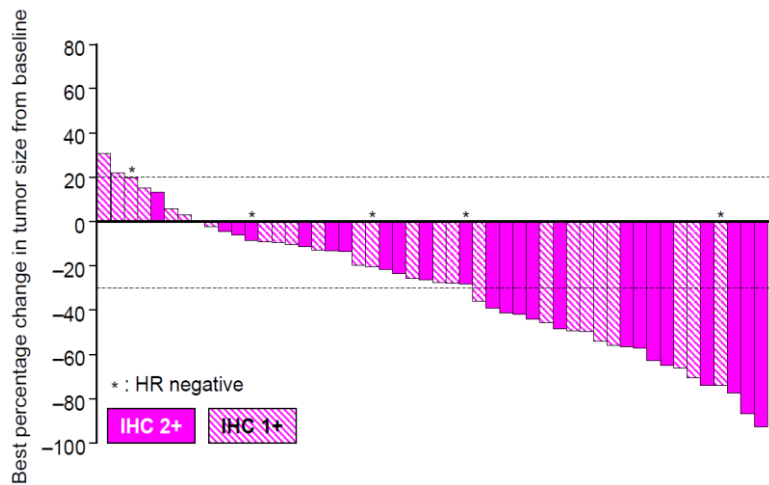
Sources: <sup>1</sup>DS data on file, N=111 (R&D Day Dec 2018) <sup>2</sup>CLEOPATRA (NEJM 2012) <sup>3</sup>MARIANNE <sup>4</sup>EMILIA <sup>5</sup>TH3RESA <sup>6</sup>Iwata et al ASCO2018, April 2018 data cut off, N=111 includes neoadjuvant and/or adjuvant therapies, J101 study, <https://clinicaltrials.gov/ct2/show/NCT02564900>



# HER2+ breast cancer: Patient flow and landmark studies



# DS-8201: Breakthrough efficacy in HER2 low breast cancer



Dotted lines denote 30% decrease and 20% increase in tumor size cutoffs for partial response and progressive disease, respectively. IHC, immunohistochemistry.

	Confirmed ORR	mDoR	mPFS
All (N = 51)	44.2% (N=43)	9.4m	7.6m
IHC 2+ (n = 24)	54.5% (N=22)	11.0m	13.6m
IHC 1+ (n = 27)	33.3% (N=21)	7.9m	5.7m
HR+ (n = 45)	47.4% (N=38)	11.0m	7.9m
Prior CDK4/6 inhibitor (n = 15)	33.3% (N=12)	NR	7.1m



# DS-8201 in HER2 low: Compelling data vs benchmarks in hormone receptor positive (HR+) breast cancer

	Palbociclib + ET		Endocrine 2L <sup>2</sup>	Alpelisib 1L/2L PIK3CAm <sup>3</sup>	Chemo 3L+ (4 studies) <sup>4</sup>	DS-8201 3L+ (n=22*, IHC2+)	DS-8201 3L+ (n=21*, IHC1+)
	1L <sup>1</sup>	2L <sup>2</sup>					
mPFS	25m	10m	5m	11m (Positive Ph3)	~4m	13.6m	5.7m
<b>ORR</b>	<b>42%</b>	<b>19%</b>	<b>6%</b>	<b>36%</b>	<b>5-27%</b>	<b>54.5%</b>	<b>33.3%</b>
Median prior LoT for adv. disease	0	1	1	0-1	2+	5 (8 incl. neo/adj)	

Sources: <sup>1</sup>PALOMA-2 <sup>2</sup>PALOMA-3 <sup>3</sup>SOLAR-1 <sup>4</sup>Cortes et al. Lancet 2011; Kaufman et al. J Clin Oncol. 2015; Rha et al. Breast Cancer Res Treat. 2005.; Gradishar et al. J Clinical Oncol. 2005

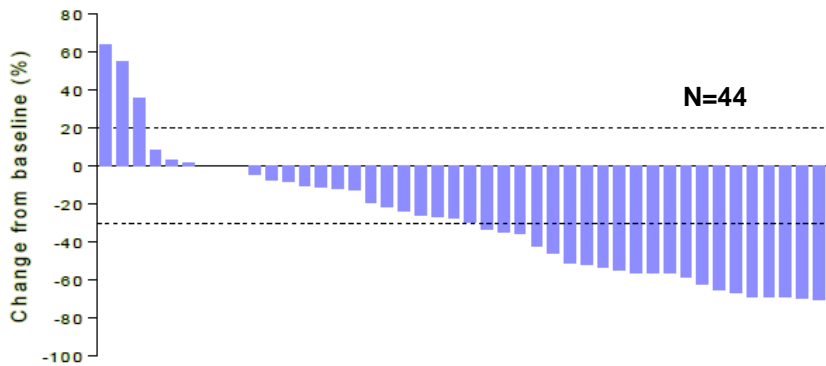
\*Includes up to N=5 TNBC patients (1 response), split by IHC status not available SABCS Dec 2018, Modi et al; Poster # p6-17-02, Abstract #486. October 12<sup>th</sup>, 2018 data cut off



# DS-8201: Compelling efficacy in other tumor types

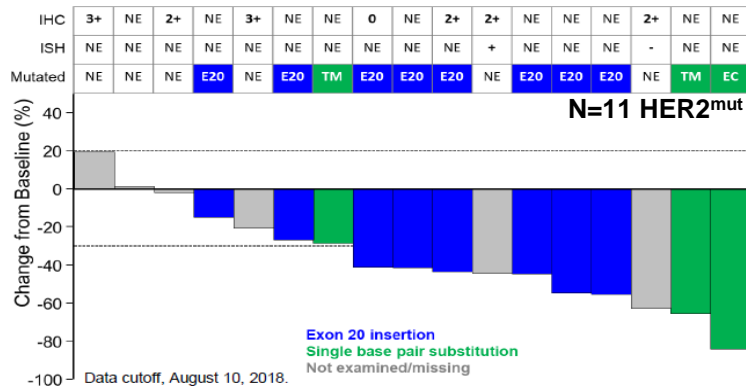
## HER2 expression and HER2 mutation

### HER2+ Gastric Cancer<sup>1</sup>



	Trastuzumab + chemo <sup>3</sup>	Ramucirumab + chemo <sup>4</sup>	T-DM1 (Failed) <sup>5</sup>	DS-8201
mPFS	6.7m	4.4m	2.7m	5.6m
ORR	47%	28%	21%	43%
Median prior LoT	0	1	1	3

### HER2+ & HER2<sup>mut</sup> NSCLC<sup>2</sup>



	Osimertinib EGFR <sup>6</sup>	Alectinib ALK <sup>7</sup>	Pembrolizumab + Ctx Non-EGFR/ALK <sup>8</sup>	T-DM1 HER2 <sup>mut9</sup>	DS-8201 HER2 <sup>mut</sup>
mPFS	18.9m	34.8m	8.8m	5m	14.1m
ORR	80%	83%	48%	44%	73%
Median prior LoT	0	0	0	2	3

Sources: <sup>1</sup>Iwata et al, ASCO 2018 Abstract #2501 <sup>2</sup>Tsurutani et al, WCLC 2018 Abstract #13325; <sup>3</sup>ToGA <sup>4</sup>RAINBOW <sup>5</sup>GATSBY <sup>6</sup>FLAURA <sup>7</sup>ALEX <sup>8</sup>KEYNOTE-189 <sup>9</sup>Li et al, JCO 2018, N=18



# DS-8201: ILD to be reduced by dose, less prior treatment, earlier diagnosis and proactive management

## ILD in Phase 1/2 studies<sup>1</sup>

	All-grade	Grade 5
All subjects N=665	9.9%	0.8%
Breast cancer, any dose N=510	10.6%	0.8%
Breast cancer, 5.4 mg/kg N=269	5.6%	0.4%

## Conclusions

- Higher likelihood of developing ILD associated with<sup>1</sup>:
  - Higher dose ( $\geq 6.4$  mg/kg)
  - **Japanese origin:** *Japanese patients 49% of N=665 sample*
  - **Number of prior therapies:** *Many patients in Phase 1/2 have multiple prior lines of therapy*
- Median 149 days (~6 months) to onset<sup>1</sup> allows for monitoring & intervention
- Education and guidelines implementation underway





# Speakers

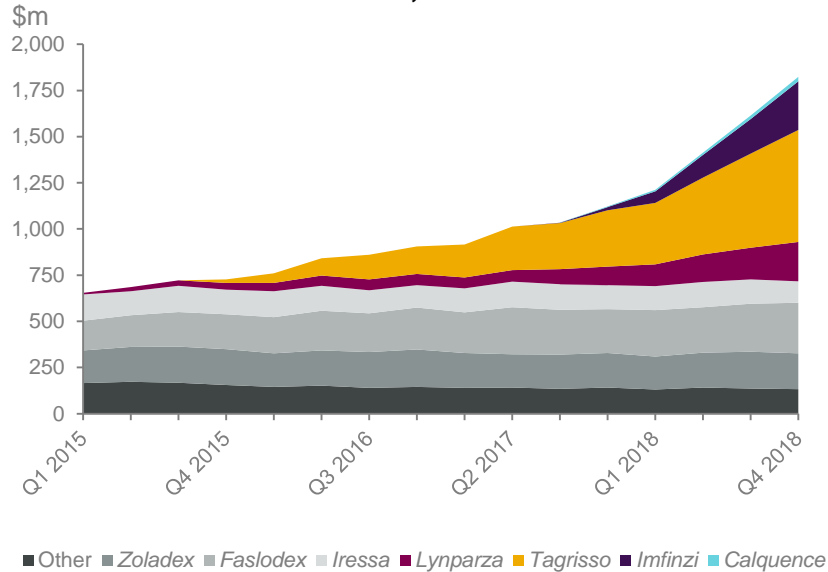


**Dave Fredrickson**  
Executive Vice President,  
Oncology



# AstraZeneca Oncology building on strong growth

## Total Oncology sales +49% FY; +61% Q4



## New medicines *Lynparza*, *Tagrisso*, *Imfinzi* and *Calquence* added \$1.9bn

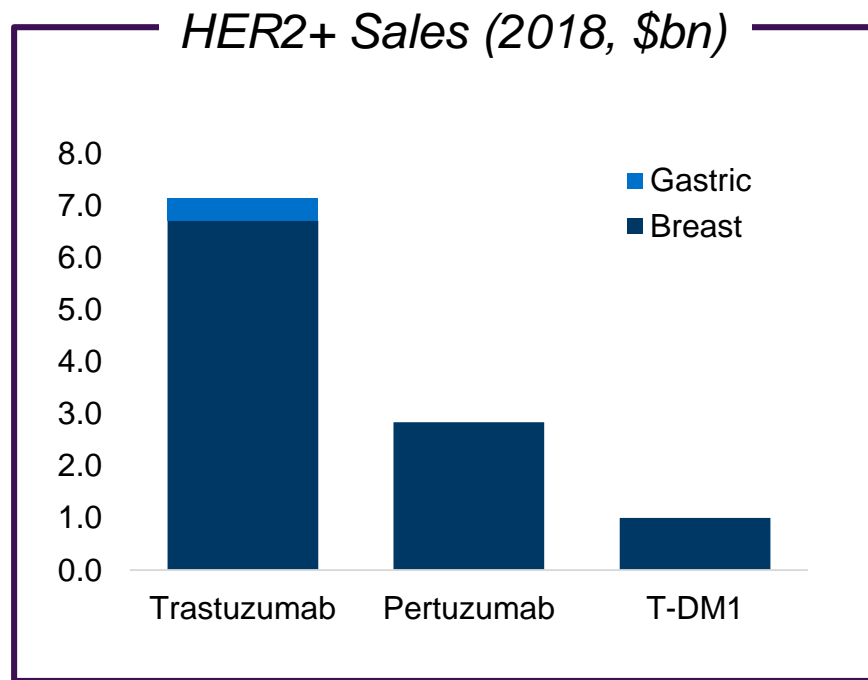
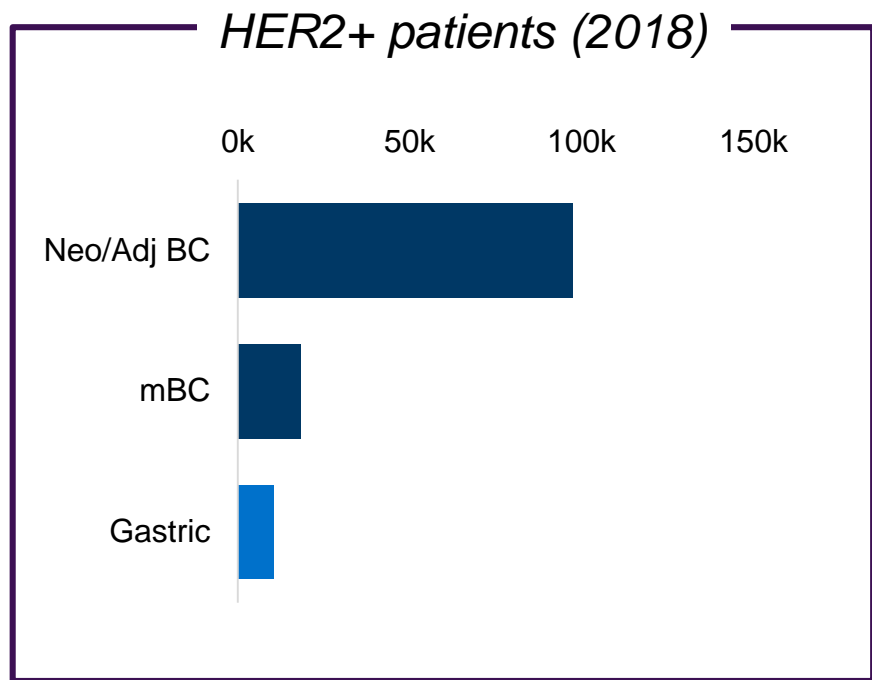
- **Tagrisso** quickly moving ahead to become the no. 1 AstraZeneca medicine in 2019
- **Imfinzi** strong US uptake; ex-US opportunity underway
- **Lynparza**, leading PARP in ovarian and breast cancers
- **Calquence** first ex-US approvals in MCL<sup>1</sup>; CLL<sup>2</sup> Phase III data in H2 2019
- **Faslodex** became \$1bn blockbuster

Absolute values and changes at CER and for FY 2018, unless otherwise stated.

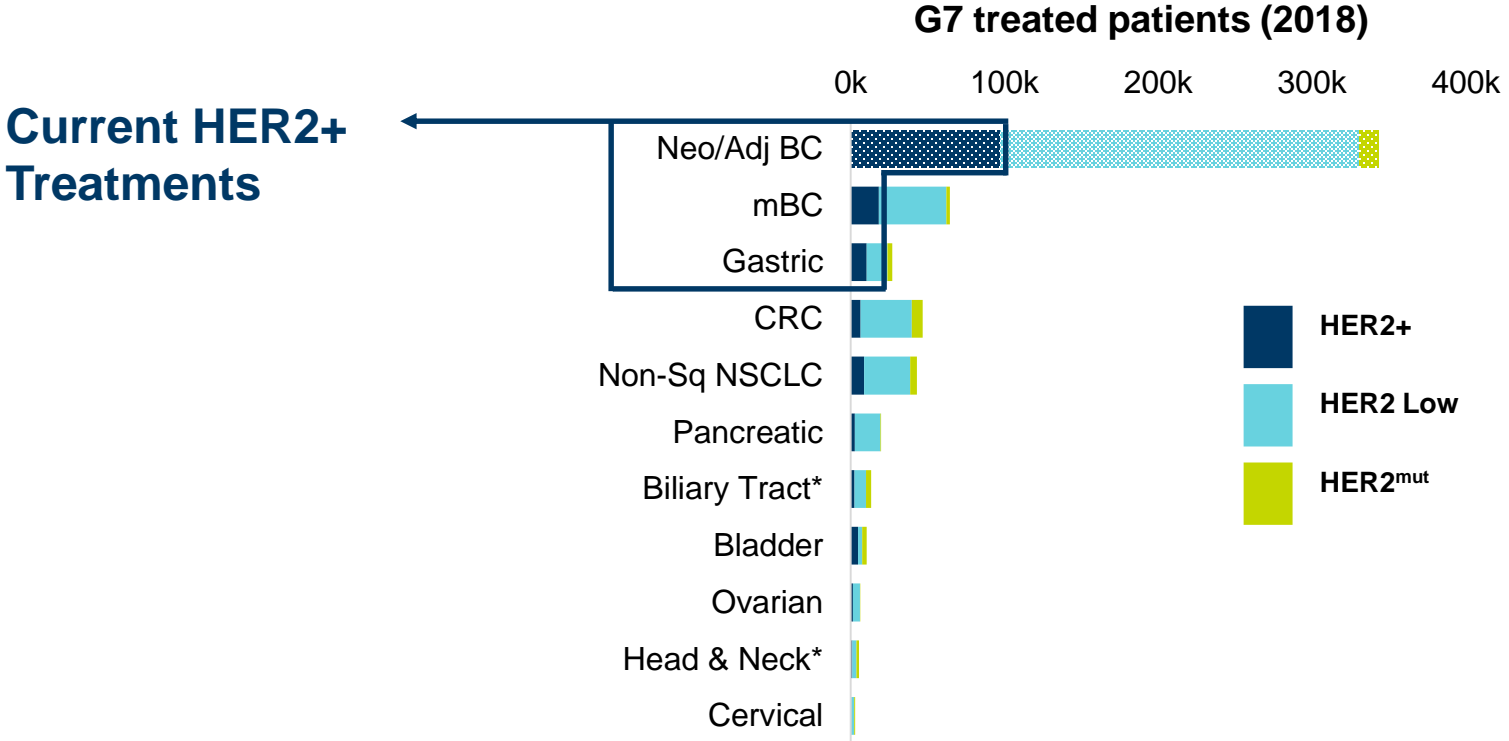
1. Mantle cell lymphoma.  
2. Chronic lymphocytic leukaemia.



# HER2+ market today: \$11bn in breast & gastric cancer



# DS-8201: Potential to expand HER2 market today



Epi source: Kantar CancerMpat 2018 drug treated patients in first line in metastatic (unless otherwise specified), for US, EU5 & Japan; Prevalence sources: Literature  
 \*Biliary Tract includes Cholangiocarcinoma & Gallbladder, AZ estimate for patients; Head & Neck includes Salivary Gland cancer



# Building DS-8201 in Breast Cancer and beyond

	Neoadjuvant / adjuvant	1L metastatic	2L metastatic	3L metastatic
<b>HER2+ Breast</b>	Post neoadj: Replace T-DM1 trastuzumab + pertuzumab + chemo	Replace trastuzumab + pertuzumab + chemo retreatment	Replace T-DM1	Post T-DM1
<b>HER2 Low Breast</b>	HR+: Endocrine ± chemo HR-: Chemotherapy	Endocrine ± CDK4/6i	Post CDK4/6i	
<b>Beyond Breast</b>	Expand into other tumour types: Gastric, NSCLC, CRC and others			



# AZ oncology capabilities and scale strengthen DS-8201

## AstraZeneca Oncology

- **Clinical operations:** >80 ongoing, clinical development projects\*
- **Regulatory affairs:** 28 major market filings for 4 key brands\*\*
- **Sales, marketing, diagnostics:** Launch experienced, breast cancer teams in 80+ countries
- **Manufacturing:** Biologics manufacturing scale up expertise

## Opportunities

- **Accelerate & expand development program**
  - New indications & combinations
- **Broaden global commercial reach**
  - AZ presence in China & beyond
- **Mitigate commercial execution risk with deep oncology expertise**
  - Leverage filing and launch experience

\*Source: AstraZeneca Annual Report

Notes: \*\*Major markets: US, EU, Japan, China; 4 key brands: Imfinzi, Lynparza, Calquence & Tagrisso (since 2014)



# Building our Oncology franchises

Significantly accelerates and expands AZ oncology portfolio



*Faslodex,  
Lynparza*



*Lynparza*



*Tagrisso, Imfinzi,  
Iressa*



*Calquence*

Four disease areas with first or best-in-class cornerstone medicine



# Speakers



**Marc Dunoyer**  
Executive Director and  
Chief Financial Officer





# Key transaction terms

- › **Territory:** Worldwide excluding Japan
- › **Structure:** co-development and co-commercialisation, 50/50 cost and profit split (ex Japan)
- › **Supply:** Daiichi Sankyo will manufacture and supply product for the collaboration
- › **Consideration:**
  - Non-contingent upfront cash fee of \$1.35bn (split evenly across 2019 & 2020)
  - Regulatory and other contingent payments (up to \$3.8bn), sales-related milestones (up to \$1.75bn)
  - AZ receives royalties on Japan sales
- › **Closing:** 29 March, 2019. No shareholder or regulatory approval required
- › **Financing:** ~\$3.5bn of new ordinary shares
- › **Financial impact\*:** neutral in 2019, growing accretion from 2020 to a significant contribution in 2023 - 2019 guidance reconfirmed



# Capital allocation priorities unchanged

## Capital allocation priorities

Investment in the business

Progressive dividend policy

Strong, investment-grade  
credit rating

Immediately earnings accretive

## DS-8201 collaboration

*Accelerates Oncology strategy*

*Supportive*

*Concurrent equity placing  
strengthens credit profile*

*Neutral to core EPS 2019, growing accretion  
from 2020 to a significant contribution in 2023\**



# Equity placing demonstrates commitment to credit rating

## Equity placing to fund near-term transaction requirements and strengthen balance sheet:

- › Meet upfront and near term DS-8201 funding requirements
  - \$1.35bn upfront non-contingent payment (split evenly across 2019 & 2020)
  - ~\$1bn approval and sales-related contingent payments from 2020 to 2022
- › Increase overall balance sheet strength and liquidity
  - Repay \$1bn bond maturing September 2019



# 2019 guidance reconfirmed

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## Product sales

A high single-digit percentage increase

## Core EPS

\$3.50 to \$3.70

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Guidance at CER, post equity placing





# Q & A