Patient Preferences Regarding RA Therapies

Recently published survey work in the medical literature (available with analyst) reveals patient preferences for RA therapies, including the most important medical attributes:

- 1) Route of administration – with oral route being the preferred choice in 56% of respondents.
- 2) Frequency of administration – Q8W was the most preferred frequency.
- 3) Chance of serious side effects (this is particularly interesting, given history with TNF-alpha concerns in the past, black-box warnings, and PE/DVT risks from the JAKs).

Fig. 7: Patient Preferences for RA Therapies in Pts with No bDMARD Use

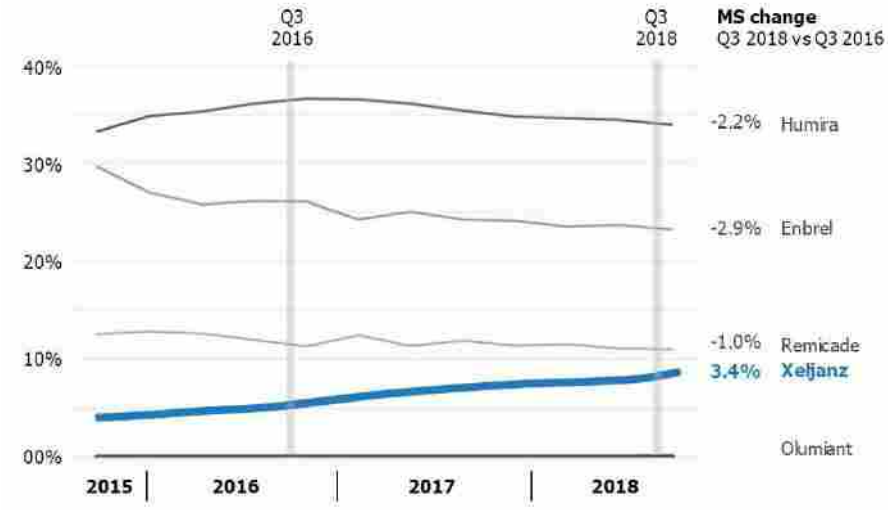
Patient Preferences - Rheumatoid Arthritis				
1	Route of Administration	JAKi	>	TNFα, IL-6
2	Frequency of Administration	TNFα, IL-6	>	JAKi
3	Chance of Serious Side Effects	Filgotinib	>	other JAKis, TNFα, IL-6

Source: AHDB Jan 2016, Instinet research

- **Patient Survey in Biologic-Naïve Patients:** The survey was intended for patients who had been diagnosed with RA but had never used a bDMARD.
  - Once Daily (QD) was not part of the respondent's choice, as Tofacitinib represented the only available daily option (as BID) at the time of survey.
  - Efficacy measures might have been selected as an important attribute with less frequency because the range of choices was relatively narrow, meaning the choices were similarly effective.
  - Despite that, ability to reduce joint pain/swelling and ability to perform daily tasks and activities were consistently ranked among the top medication attributes in determining patient choice.

Strong JAK Uptake in US and EU5 – Positive Read-Through to Filgo's Future Commercial Opportunity

Fig. 8: Xeljanz – Gradual Uptake in US Despite Subpar Efficacy and High Discontinuations

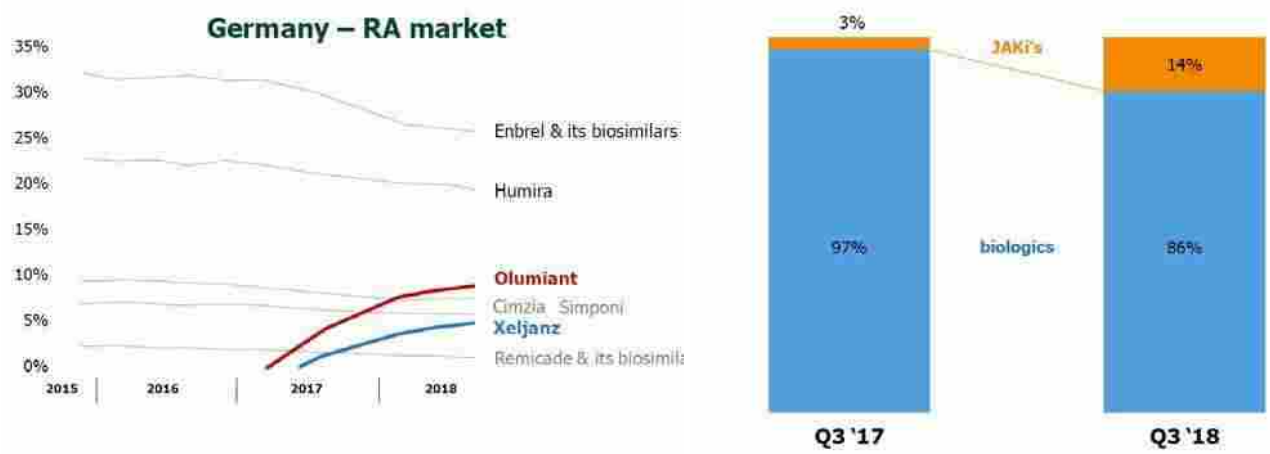


Xeljanz US Uptake: Pos. Read-through to Best-in-Class JAKi - Filgotinib

- Despite subpar efficacy and high discontinuations, Xeljanz has garnered an impressive 3.4% market share.
- Though we anticipate filgotinib will outperform Xeljanz, we conservatively estimate, due to the crowded landscape, 3.1% penetration into the addressable US mod to severe RA market by 2025E ($1.56bn in US), with a high 85% compliance rate.
- We anticipate filgotinib uptake in IBD (UC and Crohn's) to be more robust, given high unmet need and demand for efficacious oral therapies.
- Note on Filgo Peak sales expectations by indication.

Source: Company data, Instinet estimates

Fig. 9: Promising EU Uptake for the First 2 JAK inhibitors on the Market – Biosimilars to Help Grow the Pie



Source: Company data, Instinet estimates

- In EU, where Olumiant is approved for both doses (2mg and 4mg), 4mg is the most prescribed dose; uptake has been robust, reaching 10% in market share in Germany.
  - –High-dose usage may suggest Olumiant activity and convenience are resulting in patient switches from biologics.
  - – *This was anticipated, considering EU's historical preference for orals over injectables.*
- In Germany, Xeljanz lags behind Olumiant, which is a positive read-through to high-efficacy JAKs poised to enter the market (Upadacitinib and Filgotinib), in our view.
- **New entrants historically expand the market.** Based on historical precedents, the total market size of a drug class expands with each competitive entrant, despite ensuing pricing pressure, and facilities wider adoption (PD-1, CDK4/6 inhibitors, ALK inhibitors, SGLT2 inhibitors, etc.).

MANTA P2 Now Up to 94 Sites – Potential NDA by Mid-2019

- 2019 the Filgo Catch Up Year? This note depicts a bullish scenario where NDA is filed by mid-2019 for an expedited review (w/ PRV) toward a YE19 approval and concurrent launch with Upadacitinib.

Fig. 10: MANTA P2 Trial Update

Source: Company data, clinicaltrials.gov, Instinet estimates

Fig. 11: Upside – Filgotinib Milestones Timeline

This is a bull-case scenario, supported by a quicker-than-anticipated MANTA data accrual and/or partial data append and GILD's PRV utilization

Development Timeline	1Q19	2Q19	3Q19	4Q19	1Q20
Clinical Timelines					
FINCH 1 (MTX-IR, P3)	Topline Readout	Possible Presentation at AACR or EULAR			
~~FINCH 2 (bDMARD-IR, P3)~~					
FINCH 3 (MTX-Naiive, P3)	Topline Readout	Possible Presentation at AACR or EULAR			
MANTA (Testicular Tox, P2)	Enrollment Complete	Testicular Safety Data			
~~NCT03417778 (PK, P1)~~					
Regulatory Timelines					
Filgotinib		Regulatory Filing (Possible PRV for 6mo review)		Approval & Launch	
Upadacitinib	FDA Files NDA for Review			Approval & Launch	

Source: Company data, Instinet estimates

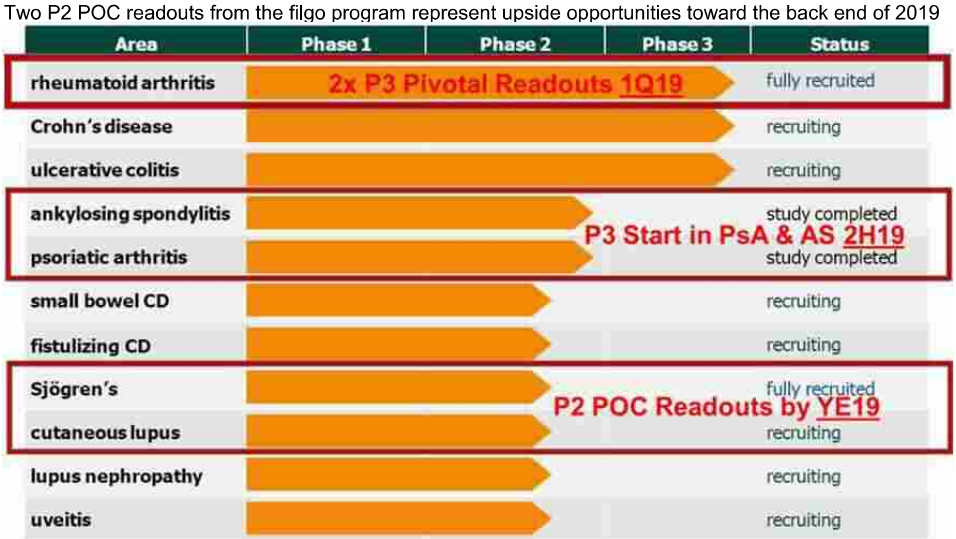
Post-FINCH – 2 x Upside Calls by YE19, P2 POC Data in CLE and Sjogren's

Beyond FINCH readouts (from filgo pipeline), we are anticipating

- initiation of Pivotal P3 filgotinib trials in Ankylosing Spondylitis and Psoriatic Arthritis, and
- P2 POC readouts in Sjogren's and CLE by YE19.

Fig. 12: Filgotinib Program Readouts in FY19

Two P2 POC readouts from the filgo program represent upside opportunities toward the back end of 2019



Source: Company data, Instinet estimates

Catalysts

Fig. 13: Potential Catalysts

Time	Event	Impact	Drug	Indication	Phase	Program	NCT (or EU) #
Filgotinib							
1Q19	**DATA:** Topline results, MTX-IR	+++	filgotinib	Rheumatoid arthritis	3	**FINCH 1**	NCT02889796
1Q19	**DATA:** Topline results, MTX-Naiive	+++	filgotinib	Rheumatoid arthritis	3	**FINCH 3**	NCT02886728
1H19	**ENROLLMENT:** complete, testicular safety study	++	filgotinib	ulcerative colitis	2	**MANTA**	NCT03201445
1Q19	**ENROLLMENT:** complete	+	filgotinib	ulcerative colitis	3	**SELECTION 1**	NCT02914522
2H19	**DATA:** Testicular safety Data	+++	filgotinib	ulcerative colitis	2	**MANTA**	NCT03201445
2H19	**ENROLLMENT:** complete	+	filgotinib	Crohn's disease	3	**DIVERSITY 1**	NCT02914561
2H19	**DATA (competitor):** Topline bDMARD int/IR, on stable csDMARD	++	upadacitinib	Rheumatoid arthritis	3	**SELECT-CHOICE**	NCT03086343
2H19	**REGULATORY:** FDA Filing	+++	filgotinib	Rheumatoid arthritis	n/a	**n/a**	n/a
2H19	**INITIATION:** Initiate Ph 3	+	filgotinib	Psoriatic Arthritis	3	**n/a**	n/a
2H19	**INITIATION:** Initiate Ph 3	+	filgotinib	Anklyosing Spondylitis	3	**n/a**	n/a
4Q19	**LAUNCH (competitor):** Upadacitinib	++	upadacitinib	Rheumatoid arthritis	n/a	**n/a**	n/a
2H19	**DATA:** Topline	++	filgotinib	Cutaneous lupus erythematosus	2	**n/a**	NCT03134222
2H19	**DATA:** Topline	++	filgotinib	Sjogren syndrome	2	**n/a**	NCT03100942
1Q20	**DATA (competitor):** Celgene Phase 3 study results	+++	ozanimod	Crohn's disease	3	**n/a**	NCT03440372
1H20	**DATA:** Topline results	+++	filgotinib	ulcerative colitis	3	**SELECTION 1**	NCT02914522
2020	**DATA:** Topline results	+++	filgotinib	Crohn's disease	3	**DIVERSITY 1**	NCT02914561
2020+	**DATA:** Topline results	+++	upadacitinib	Crohn's disease	3	**n/a**	NCT03345849, NCT03345836, NCT03345823
2H21+	**DATA:** Topline results	+++	upadacitinib	ulcerative colitis	3	**U-ACCOMPLISH**	NCT02819635, NCT03653026, NCT03006068
IPF							
4Q19	**ENROLLMENT:** Complete	+	1205	Idiopathic pulmonary fibrosis	2	**PINTA**	NCT03725852
1H20	**ENROLLMENT:** Complete	++	1690	Idiopathic pulmonary fibrosis	3	**ISABELA**	NCT03711162, NCT03733444
2020	**UPDATE:** Interim Futility Analysis - Go/No-Go	+++	1690	Idiopathic pulmonary fibrosis	3	**ISABELA**	NCT03711162, NCT03733444
2021	**DATA:** Topline Data	+++	1690	Idiopathic pulmonary fibrosis	3	**ISABELA**	NCT03711162, NCT03733444
OA, Atopic Dermatitis							
2H19	**ENROLLMENT:** Complete	++	1972	Osteoarthritis (Knee)	2	**ROCELLA**	NCT03595618
2H19	**DATA:** SC. bridging topline	+	MOR106	Atopic dermatitis	1b	**n/a**	NCT03689829
2H19	**DATA:** topline readout	++	MOR106	Atopic dermatitis	2	**IGUANA**	NCT03568071
2019	**DATA (competitor):** Pfizer Ph 3 topline results w/ JAK1i	++	PF-04965842	mod-sev atopic dermatitis	3	**JADE Mono-1**	NCT03422822
2020	**DATA (competitor):** ABBV's Ph 3 prog for Upa in AtD begins to read out	++	upadacitinib	mod-sev atopic dermatitis	3	**n/a**	n/a
2H20	**DATA:** Topline readout Ph2	+++	1972	Osteoarthritis (Knee)	2	**ROCELLA**	NCT03595618
Toledo							
1H20	**INITIATION:** Start Ph1	+	~~3312~~, 2534, 3121	Healthy Volunteers	1	**n/a**	n/a
2H20	**Data:** Topline PK/PD Data	++	3312, 2534, 3121	Healthy Volunteers	1	**n/a**	n/a
2H20	**INITIATION:** initiate Ph 2 POC in IBD	++	3312	IBD	2	**n/a**	n/a

Source: Company data, Instinet estimates