COMPANY NOTE

Initiating Coverage

USA | Healthcare | Biotechnology

October 14, 2013

Jefferies

Five Prime Therapeutics, Inc. (FPRX)
New Protein-based Drug Discovery; Initiating with Buy

BUY
Price target $20.00
Price $13.19

EQUITY RESEARCH AMERICAS

Key Takeaway

Its proprietary protein discovery platform enables Five Prime to continue to generate new targets/new biologics in cancer and inflammatory disease. While three drug candidates are in early development, with Ph1b preliminary efficacy data from GSK-partnered lead product FP-1039 in 2H14, we view its modest current valuation offers an attractive risk/reward profile. Initiating coverage with a Buy and a $20 PT.

Well positioned to continue to develop new biologics utilizing its proprietary, cash-generating protein discovery technology; initiating FPRX with Buy and PT of $20. In 9/13, JEF served as a joint book-running manager for FPRX's initial public offering (~$67M in net proceeds at $13/sh). Positives include: (1) focus on new protein targets and new protein therapeutics discovery (not "me better" products); (2) preliminary clinical data flow in 2H14 - Ph1b data for GSK-partnered lead candidate FP-1039 in FGFR1-amplified NSCLC and Ph1 data for proprietary FPA008 in RA; and (3) attractive risk/reward at modest current valuation.

FPRX's technology platform (comprehensive protein library+efficient screening systems) has generated >$220M in revenue to date. According to FPRX, some of the proteins in its library are not well studied and not in the public domain, thus providing an invaluable tool for discovering potential novel proteins.

Three biologic candidates in development - FP-1039 (FGF ligand trap) in Ph1b, in partnership with GSK, FPA008 (anti-CSF-1R mAb) entering Ph1 by YE13 and FPA144 (anti-FGFR2b mAb) in preclinic. Ligand trap (vs. oral TKIs, mAb) and mAb (vs. oral TKIs) may provide potential safety advantages owing to selectivity.

Lead candidate FP-1039 (FGF ligand trap) providing potential safety advantages; preliminary Ph1b efficacy data in FGFR1-amplified squamous NSCLC in ~2H14. To date, no hyperphosphatemia and weight loss have been observed with FP-1039 (vs. oral FGFR-TKIs, anti-FGFR1 mAb in development). Assuming a launch in ~2019, we forecast peak sales of ~$1.9B in 2026, with royalty revenue of ~$290M to FPRX.

Valuation/Risks

Our $20 PT is based on ~$9/sh for FP-1039 in FGFR1-amplified cancers, ~$3/sh for FPA008 in RA, ~$2/sh for FPA144 in FGFR2-amplified gastric cancer, and ~$6/sh for technology value at a 12% annual discount rate. Risks include: (1) early-clinical stage & distant profitability; (2) inherent uncertainty in drug development; (3) additional financing risks.

USD	*Prev.*	2012A	*Prev.*	2013E	*Prev.*	2014E	*Prev.*	2015E
Rev. (MM)	--	10.0	--	11.5	--	12.1	--	20.8
EPS								
Mar	--	NA	--	NA	--	(0.53)	--	--
Jun	--	NA	--	NA	--	(0.55)	--	--
Sep	--	NA	--	(0.71)	--	(0.58)	--	--
Dec	--	NA	--	(0.53)	--	(0.62)	--	--
FY Dec	--	NA	--	(4.05)	--	(2.28)	--	(1.76)

EPS: FPRX completed its IPO in 3Q13

Financial Summary	
Book Value (MM):	$60.7
Book Value/Share:	$3.64
Net Debt (MM):	($87.0)
Long-Term Debt (MM):	NA
Cash/Share:	$5.21
Cash (MM):	$87.0

Market Data	
52 Week Range:	$16.00 - $12.80
Total Entprs. Value (MM):	$133.3
Market Cap. (MM):	$220.3
Shares Out. (MM):	16.7
Float (MM):	5.5
Avg. Daily Vol.:	NA

*General: Above figures for Financial Summary and Market Data reflect post-IPO estimates

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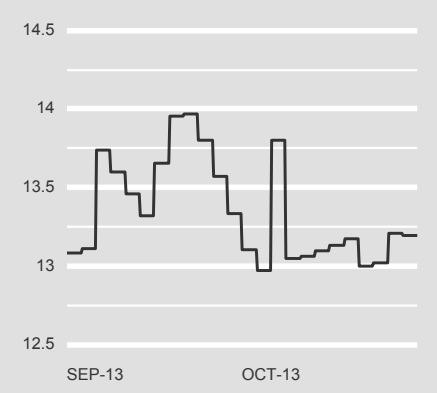
Price Performance



Five Prime Therapeutics

Buy: $20 Price Target

THE LONG VIEW

Scenarios

Target Investment Thesis

- Proprietary technology platform with early clinical data flow in 2H14
- Attractive risk/reward profile at modest current valuation
- Estimated cash of ~$87M sufficient thru 2015 and projected profitability in ~2022
- Our PT of ~$20 is based on probability-adjusted NPV of $9/sh for FP-1039 in FGFR1-amplified cancers, ~$3/sh for FPA008 in RA, ~$2/sh for FPA144 in FGFR2-amplified gastric cancer, and ~$6/sh for technology value

Upside Scenario

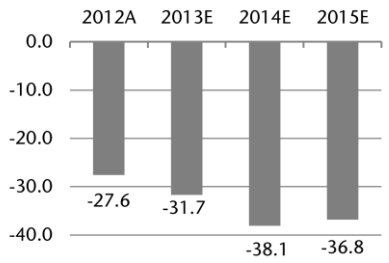
- Clinical/regulatory success of FP-1039 in FGFR1-amplified squamous NSCLC
- If FP-1039 gets U.S./EU/Asia regulatory approval in FGFR1-amplified squamous NSCLC, our NPV analysis puts a fair value for FPRX shares at ~$28/sh

Downside Scenario

- Delay/failure in clinical testing and regulatory approval of FP-1039 in FGFR1-amplified solid tumors, FPA008 in RA, FPA144 in FGFR2-amplified gastric cancer
- If FP-1039, FPA008, and FPA144 are not successful, FPRX shares could trade down to our estimated technology value level (at ~$6/sh)

Long Term Analysis

Net Income/Loss ($ in MM)



Source: FactSet, Jefferies estimates

Long Term Financial Model Drivers

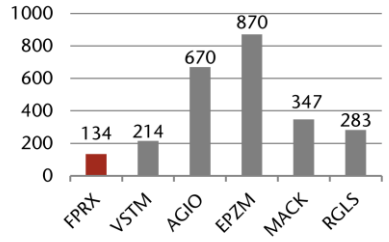
LT revenue CAGR ('20-'25)	**64%**
Organic Revenue Growth	**64%**
Acquisition Contribution	**0%**
Operating Margin Expansion	**N/A**

Other Considerations

To date, FPRX's protein discovery platform technology has generated >$220M in revenue (including the FP-1039 deal); FPRX expects at least one additional research/discovery deal per year. We view FPRX's ability to continue to generate new protein targets/therapeutics is well suited for long-term investment, aside from its early stage of clinical development.

Peer Group

Enterprise Value ($ in MM)



Source: FactSet, Jefferies estimates

Recommendation / Price Target

Ticker	Rec.	PT
FPRX	**Buy**	**$20**
VSTM	Buy	$21
AGIO	NC	NC
EPZM	NC	NC
MACK	NC	NC
RGLS	NC	NC

Catalysts

- Phase 1 initiation for FPA008 in rheumatoid arthritis (RA) by YE13, with initial data potentially by YE14
- Top-line Phase 1b data for FP-1039 in squamous NSCLC and other solid tumors in 2H14
- Phase 1 initiation for FPA144 in FGFR2-amplified gastric cancer in 2H14, with data potentially by YE15

Company Description

Five Prime Therapeutics, Inc. is an early clinical stage biotechnology company focused on discovering and developing new protein therapeutics in cancer and inflammatory diseases. Five Prime's product candidates include FP-1039/GSK3052230, a biologic (FGF ligand trap) for trapping and neutralizing cancer-promoting fibroblast growth factors (FGFs) involved in cancer cell proliferation and new blood vessel formation, which is partnered with GlaxoSmithKline; FPA008, an antibody that inhibits colony stimulating factor-1 receptor (CSF-1R); and FPA144, an antibody for inhibiting FGF receptor 2b (anti-FGFR2b mAb). In addition, Five Prime has early drug discovery partnerships with GlaxoSmithKline and UCB Pharma S.A. Founded in 2001 and IPOed in September 2013, Five Prime is headquartered in San Francisco, California.

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Executive Summary

We are initiating coverage of Five Prime with a Buy rating and $20 price target. Five Prime is an early clinical stage biotechnology company focused on discovering and developing biologics in cancer and inflammatory diseases. Our positive thesis on FPRX includes: (1) proprietary technology platform, potentially well positioned for discovering new protein targets and new protein therapeutics; (2) preliminary clinical data flow in 2H14 – Phase 1b data for GSK-partnered lead drug candidate FP-1039 in FGFR1-amplified NSCLC and Phase 1 data for proprietary FPA008 in RA; and (3) attractive risk/reward profile at modest current valuation.

Coupling its comprehensive protein library to efficient proprietary screening systems, FPRX is potentially well positioned to discover new protein targets and new biologics. While not all >5,600 extracellular proteins in its comprehensive protein library would be potential drug targets (vs. ~30 proteins targeted by currently marketed biologics), the key value driver for FPRX is that some of the proteins in FPRX's library are not well studied and not in the public domain, thus providing an invaluable tool for discovering potential novel proteins. In addition, utilizing its proprietary screening systems, FPRX can efficiently test a large number of proteins to discover new protein targets or new protein therapeutics (biologics). To date, FPRX's platform technology has generated >$220M in revenue (including the FP-1039 deal); FPRX expects at least one additional research/discovery deal per year.

Lead candidate FP-1039 (FGF ligand trap) in Phase 1b, in partnership with GSK, may have potential safety advantages (vs. others in development); preliminary efficacy data in FGFR1-amplified squamous NSCLC in ~2H14. Preclinical data shows potential safety advantages of FP-1039 (vs. oral FGFR-TKIs, anti-FGFR1 mAb), such as no hyperphosphatemia and no weight loss. Assuming a market entry in ~2019, we forecast peak worldwide sales of ~$1.9B in 2026 by GSK, with royalty revenue of ~$290M to FPRX.

Proprietary FPA008 (anti-CSF-1R antibody) expected to enter Phase 1 by YE13, with preliminary data in ~2H14. Blocking colony stimulating factor-1 receptor (CSF-1R) provides potential advantages by simultaneously inhibiting multiple proinflammatory cytokines (TNFα, IL-1, and IL-6) vs. current biologics targeting individual cytokines (~$25B in 2012 sales). Additionally, FPA008 will likely provide selectivity/safety advantages vs. small molecule CSF-1R TKIs in early development. Assuming a market entry in 2020-2021, we modestly forecast ~$926M in peak sales for RA alone in 2031, with royalty revenue of ~$185M to FPRX.

Valuation

Our $20 PT is based on an NPV analysis of ~$9/sh for FP-1039 in FGFR1-amplified solid tumors, ~$3/sh for FPA008 in RA, ~$2/sh for FPA144 in FGFR2b-amplified gastric cancer, and ~$6/sh for its proprietary technology value, at an annual discount rate of 12%. We forecast estimated Five Prime's cash of ~$87M to be sufficient to fund operations through ~2015 and project sustained profitability in ~2022.

Risks

Risks associated with FPRX shares include, but are not limited to: (1) early-stage clinical programs and distant profitability; (2) additional financing risks; and (3) general risks in the drug industry (e.g., inherent uncertainty in drug development, patent infringement, changes in regulatory and/or healthcare policies, pricing/reimbursement).

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Overview of Five Prime

Five Prime Therapeutics, founded in December 2001 and headquartered in San Francisco, California, is an early clinical stage biotechnology company with a proprietary protein therapeutic discovery platform in cancer and inflammatory diseases. As shown in Exhibit 1, Five Prime has three early-stage candidates in its development pipeline: 1) FP-1039, lead drug candidate partnered with GlaxoSmithKline (GSK, Hold), a fibroblast growth factor (FGF) ligand trap in Phase 1b for FGF receptor-1 (FGFR1)-amplified squamous non-small cell lung cancer, with top-line Phase 1b data expected in 2H14; 2) FPA008, an anti-colony stimulating factor-1 receptor (CSF-1R) humanized monoclonal antibody for inflammatory disease, slated to enter Phase 1 in rheumatoid arthritis by YE13, with preliminary data potentially by YE14; and 3) FPA144, an anti-fibroblast growth factor receptor 2b (FGFR2b) monoclonal antibody in preclinic. Currently, Five Prime has 107 full time employees.

Upcoming events for FPRX include: (1) Phase 1 initiation for FPA008 in rheumatoid arthritis (RA) by YE13, with initial data potentially by YE14; (2) top-line Phase 1b data for FP-1039 in squamous NSCLC and other solid tumors in 2H14; and (3) Phase 1 initiation for FPA144 in FGFR2-amplified gastric cancer in 2H14, with data potentially by YE15.

Exhibit 1: Five Prime's Product Pipeline

Product	Description	Indication	Status	Marketing Rights	Patent Expiry
FP-1039 (GSK3052230)	Fibroblast growth factor (FGF) ligand trap	FGFR1 gene-amplified solid tumors (e.g., squamous non-small cell lung cancer)	Phase 1b open-label, non-randomized study (n=up to 104) evaluating FP-1039 alone vs. FP-1039 + paclitaxel/carboplatin vs. FP-1039 + docetaxel in 1st and 2nd line setting of metastatic squamous NSCLC (FGFR1 amplification +) started in 3Q13, with data in 2H14 Phase 1 open-label, non-randomized, dose-ranging study (n=39) demonstrated safety and tolerability across tested dose range (IV infusion of 0.5-16.0 mg/kg for a total of 4 weekly infusions) in pts with a variety of solid tumors; study completed in 5/11	GlaxoSmithKline (U.S./EU/Canada); Five Prime (co-promotion option in U.S.; RoW rights outside of EU and Canada)	In U.S./EU, composition of matter patent through 2026; specific dosage regimens patent allowed (projected expiry in 2031); pending patent on methods of treatment and selecting patients (projected expiry in 2032)
FPA008	Anti-CSF-1R (colony stimulating factor-1 receptor) humanized monoclonal antibody	Rheumatoid arthritis (RA) and other inflammatory/ autoimmune diseases	Phase 1 trial for safety, tolerability and early clinical activity in healthy volunteers and RA pts to potentially start in 4Q13, with preliminary data by YE14	Five Prime (worldwide)	In U.S./EU (pending), composition of matter patent through 2031; methods of treatment patent pending (projected expiry in 2031-2033)
FPA144	Anti-FGFR2b humanized monoclonal antibody	FGFR2-amplified gastric cancer	Phase 1 trial for safety and early clinical activity in gastric cancer pts (FGFR2b amplification +) to potentially start in 2H14, with data by YE15	Five Prime (worldwide)	In U.S./EU (pending), composition of matter patent through 2029; methods of treatment patent pending, with projected expiration in 2029

Source: Company reports and Jefferies

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Technology Platform

Utilizing its proprietary protein drug discovery platform (Exhibit 2), Five Prime focuses on developing biologics (protein-based drugs) for new protein targets. It has built a library of >5,600 extracellular proteins such as receptors and ligands (source of targets; some not well studied as well as not in public domain according to FPRX) that could be new targets for potential protein therapeutics. Against these targets, FPRX produces and tests/screens thousands of proteins using cell-based assays and in animal models to produce new biologics. Examples of protein-based drugs/drug candidates include: (1) ligand traps (soluble receptors; e.g., Enbrel, Orencia, FPRX's FP-1039), (2) antibodies to ligands (e.g., Humira, Avastin, Remicade, Soliris), and (3) antibodies to receptors on the cell surface (e.g., Rituxan, Herceptin, Tysabri, FPRX's FPA008 and FPA144).

FPRX's protein drug discovery platform has generated >$220M from 7 collaborations, including FP-1039. FPRX expects to form one drug discovery collaboration per year going forward. Aside from the GlaxoSmithKline partnership for FP-1039 currently in Phase 1b (potential milestones up to $435M), FPRX has three research discovery collaborations with GSK (2 programs for muscle and respiratory diseases) and UCB (UCB, NC), which generated >$57M to date.

FPRX's comprehensive protein library and proprietary *in vitro/in vivo* screening systems are designed to discover new protein targets as well as new protein therapeutics. Notwithstanding inherent uncertainties in drug discovery and development, we view FPRX's comprehensive protein library (>5,600 proteins vs. ~30 proteins targeted by currently marketed biologics), coupled with proprietary *in vitro* and *in vivo* screening systems, may position FPRX well for finding new protein drug targets. Its comprehensive collection of protein targets are created from capturing the 5 prime end of full cDNA sequence, thus enabling accurate production of complete proteins. Utilizing its cell-based systems, FPRX produces proteins (~2,000 proteins per week) in human cells and then tests the protein in a disease specific cell-based model. In addition, FPRX screens thousands of proteins directly in mouse disease model, utilizing its Rapid In Vivo Protein Production System (RIPPS) technology, which allows surveillance of protein (target or therapeutic) effect on disease (by injecting naked DNA vector encoding protein of interest into mouse to synthesize target protein).

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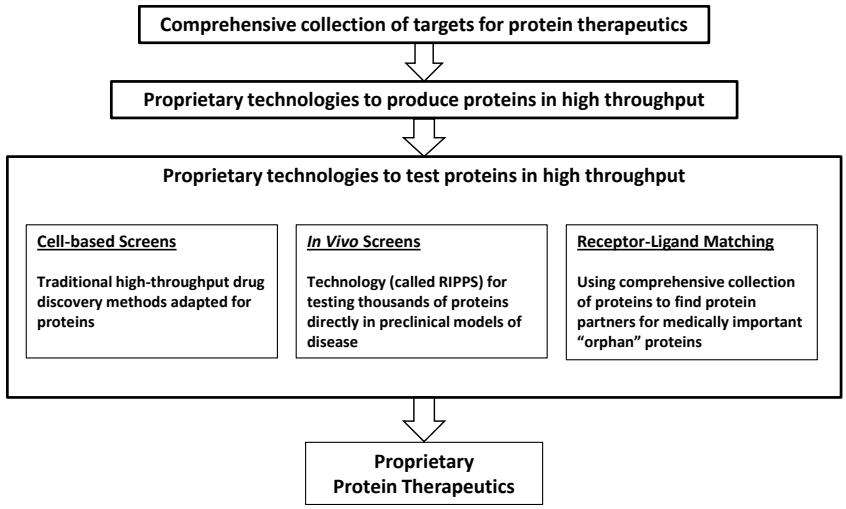
Exhibit 2: Five Prime's Protein Therapeutic Discovery Platform



RIPPS= Rapid In Vivo Protein Production System

Source: Company reports and Jefferies

FP-1039: FGFR1-amplified Solid Tumors

FP-1039, a lead drug candidate for FPRX, is an FGF ligand trap (a soluble receptor for FGF ligands), conferring ability to sequester FGFR1-activating multiple FGF family ligands, excluding FGF23 (Exhibit 3). FGFR1-gene amplified squamous non-small cell lung cancer (NSCLC) represents ~22% of total squamous NSCLC cases (~11K cases in the U.S.). Partnered with GlaxoSmithKline in the U.S., EU, and Canada, GSK is currently conducting a Phase 1b study of FP-1039 in FGFR1-amplified solid tumors (n=~70-104; commenced in 7/13), with squamous non-small cell lung cancer (NSCLC) as the lead indication. We expect top-line Phase 1b data in 2H14, with potential commercial launches in ~2019.

Fibroblast Growth Factor (FGF) Signaling Pathway

Fibroblast growth factors and their receptors are associated with multiple biological activities, including normal development pathways, cellular proliferation, differentiation, migration, growth arrest, and survival. FGF signaling is involved in many physiological roles in adults such as regulation of angiogenesis and wound repair. FGFR receptors (FGFRs) are expressed on many different cell types and involved in regulating key tumor cell behaviors. Emerging evidence has provided that deregulation of FGF signaling is frequently observed in various solid tumors and hematologic malignancies.

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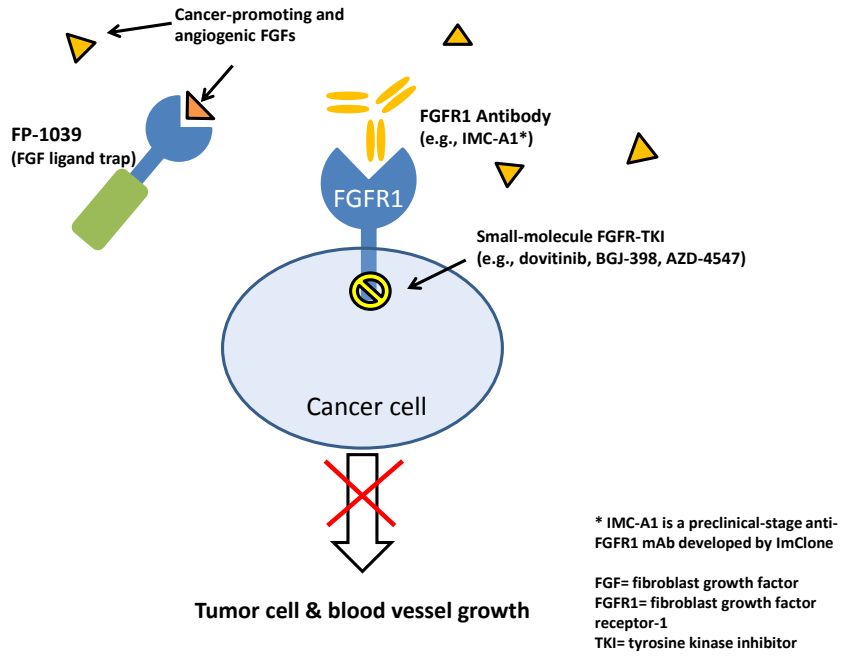
Exhibit 3: Site of Action of Selected Drug Classes Targeting FGFR1



Source: Company reports and Jefferies

Four FGFRs and 22 FGF ligands in humans (Exhibit 4). There are four FGF receptor genes, producing a total of seven main isoform receptor proteins (FGFR1b, FGFR1c, FGFR2b, FGFR2c, FGFR3b, FGFR3c, and FGFR4) found at the cell surface. A fifth related receptor, FGFR5, binds FGFs, however, it does not have the intracellular tyrosine kinase domain for downstream intracellular signaling. The human FGF family is comprised of 22 ligands, with 18 FGF ligands binding the FGFRs, regulating a variety of physiologic roles (Exhibit 4). Although there are 23 FGF members described, FGF15 does not exist in humans (mouse ortholog of FGF19); four out of 23 FGFs act in an FGFR-independent pathway (FGF11-14). Binding of FGF to FGFR on the cell surface induces receptor dimerization, stimulating receptor intracellular kinase domain activity and downstream activation of several central intracellular signaling pathways, including PI3K/Akt and Ras/MAPK. During embryonic development, FGFR signaling regulates mesenchymal-epithelial communication and organogenesis, involving the nervous system, limbs, midbrain, and lungs; in adults, it regulates tissue repair, inflammation, tissue homeostasis, and angiogenesis.

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Exhibit 4: Fibroblast Growth Factor (FGF) Family

FGF	Phenotype of knockout mouse	Physiologic role
FGF1	Normal	Not established
FGF2	Loss of vascular tone; slight loss of cortex neurons	Brain development, blood pressure regulation, wound healing
FGF3	Inner ear agenesis	Inner ear development
FGF4	Embryonic lethal	Cardiac valve leaflet formation; limb development
FGF5	Abnormally long hair	Hair growth cycle regulation
FGF6	Defective muscle regeneration	Myogenesis
FGF7	Matted hair; reduced nephron branching in kidney	Branching morphogenesis
FGF8	Embryonic lethal	Brain, eye, ear and limb development
FGF9	Postnatal death; gender reversal; lung hypoplasia	Gonadal development; organogenesis
FGF10	Failed limb and lung development	Branching morphogenesis
FGF11 *	Uncertain	Uncertain
FGF12 *	Viable	Neuromuscular function
FGF13*	Weakened learning and memory	Uncertain
FGF14 *	Viable	Neurological function
FGF15	Lethal	No human FGF 15 (mouse ortholog of human FGF19)
FGF16	Embryonic lethal	Heart development
FGF17	Abnormal brain development	Cerebral and cerebellar development
FGF18	Delayed long-bone ossification	Bone development
FGF19	Increased bile acid pool	Bile acid homeostasis; lipolysis; gall bladder filling
FGF20	No knockout model	Neurotrophic factor
FGF21	Mild weight gain, impaired glucose homeostasis	Fasting response; glucose homeostasis; lipolysis and lipogenesis
FGF22	Resistance to generalized seizures	Presynaptic neural organizer
FGF23	Hyperphosphatemia, hypervitaminosis D, mineralization of soft tissues (heart, kidney)	Phosphate & vitamin D homeostasis

* Acts in an FGFR-independent pathway (FGFR= fibroblast growth factor receptor)

Source: "The FGF family: biology, pathophysiology and therapy," Nature Review March 2009; 8: 235-252; "Endocrine fibroblast growth factors 15/19 and 21: from feast to famine," Genes Dev. 2012 26: 312-324; "Functional Evolutionary History of the Mouse Fgf Gene Family," Developmental Dynamics 237: 18-27, 2008; "Fibroblast Growth Factor (FGF) Homologous Factors Share Structural but Not Functional Homology with FGFs," JBC 2003, 278 (36): 34226-34236; "Compensation by Fibroblast Growth Factor 1 (FGF1) Does Not Account for the Mild Phenotypic Defects Observed in FGF2 Null Mice," Molecular and Cellular Biology, " Mar. 2008, p. 2260-2268; "Fibroblast Growth Factor 13 Is a Microtubule-Stabilizing Protein Regulating Neuronal Polarization and Migration," Cell June 22, 2012, 149: 1549-1564; "Fibroblast Growth Factor 21-Deficient Mice Demonstrate Impaired Adaptation to Ketosis," Endocrinology, November 2009, 150(11) 4931-4940.

Deregulation of FGF signaling frequently observed in various cancers (Exhibit 5). Given the FGF signaling associated with embryogenesis and adult physiologic function, deregulated FGFR activity has been shown to contribute to carcinogenesis in several mammalian cancers. Several underlying oncogenic mechanisms for FGF signaling include: (1) FGFR gene amplification/protein overexpression (e.g., FGFR1 in squamous NSCLC, breast cancer, oral squamous carcinoma; FGFR2 in gastric cancer); (2) activating mutations in FGFR leading to ligand-independent constitutive signaling (e.g., FGFR3 mutation in bladder cancer), (3) chromosomal translocations conferring altered receptor

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signaling properties (e.g., myeloproliferative syndrome), and (4) impaired termination of FGFR signaling (e.g., impaired MAPK-mediated negative feedback mechanisms).

Exhibit 5: FGFR Alteration in Selected Human Malignancies

Cancer	Receptor	Alteration
Breast cancer	FGFR1	Gene amplification
Head and neck cancer	FGFR1	Gene amplification
Non-small cell lung cancer	FGFR1	Gene amplification
Small cell lung cancer	FGFR1	Gene amplification
Prostate	FGFR1	Protein overexpression
MPD	FGFR1	Fusion protein
Endometrium	FGFR2	Mutation
Bladder	FGFR3	Mutation
Multiple myeloma	FGFR3	Protein overexpression
Sarcoma	FGFR4	Mutation

FGFR= fibroblast growth factor receptor; MPD= myeloproliferative disorder

Source: Company reports and Jefferies; "Roles of Fibroblast Growth Factor Receptors in Carcinogenesis," *Mol Cancer Res* 2010; 8: 1439-1452.

Some tumors make excessive copies ("amplify") of the FGFR1 gene and are dependent on FGFs for growth. Gene amplification leads to overexpression of the receptor protein on cell surface that the gene encodes; in turn, this can increase downstream signaling via ligand-receptor binding (e.g., FGF-FGFR1). According to Five Prime, there are several tumor types which demonstrate FGFR1 gene amplification with significant incidence (Exhibit 6), including squamous non-small cell lung cancer (22%), head and neck cancer (17%), breast cancer (7-15%), and small cell lung cancer (6%). FPRX notes constitutive (ligand-independent) activation of FGFR1 is not common, thus, sequestration of ligand (by FP-1039) and/or blockade of FGFR (by anti-FGFR mAb) should result in decreased intracellular FGFR kinase activity and downstream signaling.

FGFR1 gene amplification confers a worse prognosis, compared to FGFR1 gene amplification negative. In squamous cell carcinoma of the lung, increased FGFR1 gene copy number/amplification (≥9 copies per nucleus) resulted in significantly decreased median overall survival (OS) of 51.2 months vs. 104.6 months in patients with 2 copies/nucleus (disomy; p=0.005) ("Fibroblast Growth Factor Receptor 1 Gene Amplification Is Associated With Poor Survival and Cigarette Smoking Dosage in Patients With Resected Squamous Cell Lung Cancer," *J Clin Oncol* 31: 731:737). In breast cancer, patients with FGFR1-amplification (>5 copies per nucleus) resulted in shorter overall survival (OS) compared to FGFR1-amplification negative patients (~57% vs. 82% OS at ~150 months, p=0.01) ("FGFR1 amplification in breast carcinomas: a chromogenic *in situ* hybridization analysis," *Breast Cancer Research* 2007, 9(2): 1-12). The FGFR1 gene amplification is readily identified with currently available companion diagnostic techniques such as fluorescent *in situ* hybridization (FISH).

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Exhibit 6: FGFR1 Gene Amplification in Solid Tumors

Solid tumor type	% of FGFR1 gene amplification	Prevalence of FGFR1 amplification	
		U.S.	Europe & Asia
Non-small cell lung cancer	22%	11,000	51,000
Head and neck cancer	17%	17,000	132,000
Breast cancer	7-15%	32,000	148,000
Small cell lung cancer	6%	2,000	10,000
Total		**62,000**	**341,000**

FGFR1= fibroblast growth factor receptor-1

Source: Company reports and Jefferies

FP-1039 (FGF ligand trap) may have safety advantages over oral FGFR TKIs and anti-FGFR mAb (Exhibit 7). In preclinical studies, unfavorable adverse effects were observed with oral FGFR tyrosine kinase inhibitor (FGFR-TKIs) and anti-FGFR monoclonal antibodies (anti-FGFR mAb). Anti-FGFR mAb treatment (intraperitoneal injection 3x weekly) resulted in rapid, dose-dependent weight loss, plateauing at 35-40% weight loss in 2 weeks (at doses >4 mg/kg), although fully reversible with therapy discontinuation ("Monoclonal antibody antagonists of hypothalamic FGFR1 cause potent but reversible hypophagia and weight loss in rodents and monkeys," *Am J Physiol Endocrinol Metab* 2007 292: E964-E976). Given the areas of the hypothalamus being among the few CNS sites where blood brain barrier is not present, it was suggested this weight loss was caused by dysregulation of hypothalamic feeding circuits leading to hypophagia (reduced food intake) and weight loss via anti-FGFR1c mediated blockade. For orally active small molecule FGFR tyrosine kinase inhibitors (FGFR-TKIs), pan-FGFR-TKI treatment (5 mg/kg once daily for 4 days) showed elevated serum levels of FGF23 by 2.8 folds and phosphorus by 2.4 folds, moderate-to-marked mineralization of the myocardium, and mild-to-marked mineralization of the myocardial blood vessels ("Pan-FGFR Inhibition Leads to Blockade of FGF23 Signaling, Soft Tissue Mineralization, and Cardiovascular Dysfunction," *Toxicological Sciences,* August 23, 2013, 1-14). It has been shown that FGF23 activates receptors in the kidney, modulating vitamin D metabolism and phosphate uptake; thus, increased FGF23 levels are associated with hyperphosphatemia (leading to calcification in soft tissues such as heart and kidney) and hypervitaminosis D. Note that FP-1039 does not block FGF23, thus no increases in blood phosphate levels.

Exhibit 7: Side Effects of FGF-targeting Classes of Products in Development

Class	Blood Phosphate Elevation/Tissue Calcification	Significant Weight Loss	Potential Underlying Mechanism
FGF ligand trap (FP-1039)			
Small molecule FGFR-TKI	X		Mediated by renal FGF-23 signaling and FGF-23 expression in bone
Anti-FGFR1 mAb		X	Possibly mediated by hypothalamic-based hunger and/or satiety circuits centrally within the brain

"Monoclonal antibody antagonists of hypothalamic FGFR1 cause potent but reversible hypophagia and weight loss in rodents and monkeys," *Am J Physiol Endocrinol Metab* 292: E964-E976, 2007; "Pan-FGFR Inhibition Leads to Blockade of FGF23 Signaling, Soft Tissue Mineralization, and Cardiovascular Dysfuction," *Toxicological Sciences* 2013: 1-14.; "FGF Receptors Control Vitamin D and Phosphate Homeostasis by Mediating Renal FGF-23 Signaling and Regulating FGF-23 Expression in Bone," *JBMR,* October 2011, 26 (10): 2486-2497.

FGF= fibroblast growth factor; FGFR-TKI= fibroblast growth factor receptor tyrosine kinase inhibitor; mAb= monoclonal antibody

Source: Company reports and Jefferies

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Clinical Program for FP-1039

FP-1039 (GSK3052230) is a ligand trap composed of the extracellular domain of FGFR1 (conferring ability to sequester multiple FGF family ligands, excluding FGF23) and the Fc region of an antibody (conferring extended circulating half-life). In March 2011, Five Prime originally formed a U.S/EU/Canada partnership with Human Genome Sciences, which was subsequently acquired by GlaxoSmithKline in August 2012. Started in July 2013, GSK is conducting a Phase 1b study of FP-1039 in FGFR1-amplified solid tumors, with squamous non-small cell lung cancer (NSCLC) as the lead indication. With estimated Phase 1b topline data in 2H14, we forecast initiation of Phase 3 in ~2016, with potential BLA filing/U.S. commercial launch in ~2018/~2019, respectively.

Preliminary Phase 1b data in FGFR1-amplified solid tumors in ~2H14, with a focus on 1st-line & 2nd-line squamous NSCLC. Phase 1b trial (n=~70-104) is a 3-arm, non-randomized, three parallel-group, uncontrolled, open-label study examining the safety, tolerability, pharmacokinetics (PK) and overall response rate of FP-1039 (1) in combination with paclitaxel and carboplatin (Arm A; confirmed FGFR1-amplified 1st-line squamous NSCLC), (2) in combination with docetaxel (Arm B; confirmed FGFR1-amplified 2nd-line squamous NSCLC), or (3) FP-1039 monotherapy (Arm C; 3rd-line squamous NSCLC, head and neck cancer, breast cancer, and small cell lung cancer). In Arm A, FGFR1-amplified 1st-line squamous NSCLC patients receive FP-1039 as 30-minute IV infusion (dose escalation range of 5-20mg/kg) once weekly (Day 1, Day 8, Day 15) of each 21-day cycle (until disease progress) plus paclitaxel (constant infusion for 3 hours) and carboplatin (constant infusion for 30-60 minutes) IV on Day 1 of each 21-day cycle. The number of cycles of paclitaxel/carboplatin will be limited to 4-6 cycles. In Arm B, FGFR1-amplified 2nd-line squamous NSCLC patients receive FP-1039 as 30-minute IV infusion (dose escalation range of 5-20mg/kg) once weekly (Day 1, Day 8, Day 15) of each 21-day cycle plus docetaxel as a 1 hour IV infusion on Day 1 of each 21-day cycle; patients may continue to receive both FP-1039 and docetaxel until disease progression or as long as they are considered to derive benefit from treatment. In Arm C, refractory patients receive FP-1039 as 30 minute IV infusion (20mg/kg) once weekly (Day 1, Day 8, Day 15) of each 21-day cycle as monotherapy. Estimated study completion date is June 2014. In Arms A and B, once FP-1039 optimal dose in combination with chemotherapy is identified, ~20-30 FGFR1-amplified squamous NSCLC patients will be enrolled for responses.

Go/no-go decision for future development of FP-1039 from Phase 1b likely in ~2015. For standard of care chemotherapy regimens for metastatic squamous non-small cell lung cancer (NSCLC), paclitaxel+carboplatin in 1st-line settings has shown ~20-30% ORR, with progression-free survival (PFS) of ~4-6 months (~21% ORR, 3.4-month median PFS & 7.8-month OS in *NEJM*: 346 (2), 2002); and docetaxel in 2nd-line settings has shown ~10% ORR, with PFS of ~1-2 months and OS of ~9 months (8.8% ORR, 2.9-month median PFS and 7.9-month OS in *JCO*:22 (9), 2004). FPRX noted that for 2nd- or 3rd-line NSCLC, a randomized Phase 2 study may be sufficient for approval (potential primary endpoint of PFS, with OS as secondary endpoint) while for 1st-line NSCLC, two randomized Phase 3 studies will be required (potential primary endpoint of PFS or OS).

Phase 1 data showed safety and tolerability of FP-1039 in non-FGFR1-amplified refractory solid tumors (Exhibit 8). Completed in June 2011, an open-label, dose-finding Phase 1 trial (n=39) examined safety and pharmacokinetics of FP-1039 in refractory patients with metastatic or locally advanced unresectable solid tumors (advanced or metastatic breast, lung cancer, colorectal, prostate, head and neck, and uterine cancers). Patients were not selected for FGFR1 gene amplification and no cases of squamous NSCLC were enrolled. FP-1039 was administered intravenously once weekly for four weeks (dose escalation from 0.5mg/kg to 16mg/kg). No maximum tolerated dose

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(MTD) was reached. FPRX noted that the dosing was stopped at 16mg/kg (equivalent to ~20mg/kg current dosing) for (1) more than enough drug exposure in preclinical studies; (2) manufacturing feasibility for commercial supply; and (3) unlikelihood of reaching MTD given its high tolerability (not uncommon with biologics due to specificity). For adverse events, dose limiting toxicities (DLTs) included Grade 2 urticaria and Grade 3 neutropenia/bowel perforation at lower doses (0.75 mg/kg and 1 mg/kg, respectively). No cases of elevated phosphate or retinal detachment were observed. For clinical activity, 44% of patients (n=17) had stable disease (SD), including one prostate cancer patient progressed on chemotherapy with 7-month SD and 16 additional patients; and reduced FGF2 plasma levels were observed in all patients, according to Five Prime.

Exhibit 8: Grade 2/3 Adverse Events for FP-1039 in Phase 1 Trial

	Dosing Cohort (mg/kg)						
Adverse Event	0.5 (n=6)	0.75 (n=6)	1 (n=6)	2 (n=3)	4 (n=3)	8 (n=5)	16 (n=10)
Anemia			1				1
Neutropenia			**1 (DLT)**				
Diarrhea			1				
Intestinal Perforation			**1 (DLT)**				
Nausea			1				
Vomiting							1
Fatigue	2						2
Infusion Related Reaction							1
Peripheral Edema			1				
Hypocalcemia	1						
Hyponatremia							1
Weakness							1
Urticaria		**1 (DLT)**					

* Dose-limiting toxicity (DLT)

Source: Company reports and Jefferies

Preclinical studies showed enhanced activity of FP-1039 in combination with chemotherapy or anti-VEGF therapy. In mice, FP-1039 IV administration (15 mg/kg) resulted in mean tumor volume reduction roughly by 75% and 70% from control vehicle in non-small cell lung cancer and small cell lung cancer models at ~32 days post-tumor implantation, respectively. When co-administered with chemotherapy (FP-1039 plus docetaxel combination), from albumin infusion control, mean NSCLC tumor volume reduction was roughly 95% vs. 30% for FP-1039 alone vs. 75% for docetaxel alone at ~38 days post-tumor implantation. Seven of nine mice in combination group demonstrated complete response. In SCLC, FP-1039 plus cisplatin-etoposide combination resulted in mean tumor volume reduction by roughly 95% vs. 40% for FP-1039 alone (15mg/kg) vs. 80% for cisplatin-etoposide alone from vehicle control at ~45 days post-tumor implantation.

Competition

Multiple oral FGFR-TKIs are in early-stage of development for solid tumors, with early clinical activity (Exhibit 9), including dovitinib (Phase 2)/BGJ-398 (Phase 1b) by Novartis (NOVN VX, Buy), E-3810 (Phase 1) by Les Laboratoires Servier/EOS S.p.A, AZD-4547 (Phase 1) by AstraZeneca (AZN LN, Underperform), JNJ-42756493 (Phase 1) by

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Janssen Pharmaceuticals, a subsidiary of Johnson & Johnson (JNJ, Hold), LY-2874455 (Phase 1) by Eli Lilly (LLY, Underperform), and ARQ-087 (Phase 1) by ArQule (ARQL, NC).

FP-1039 is the only FGF ligand trap in development, with selectivity conferring potential safety advantages vs. oral FGFR-TKIs and anti-FGFR1 mAb. In contrast to orally active, small molecule FGFR-TKIs and injectable anti-FGFR1 mAb, injectable FP-1039 may avoid potential adverse effects of blood phosphate elevation/tissue calcification and significant weight loss. As noted previously, blood phosphate elevation (hyperphosphatemia)/soft tissue calcification associated with FGFR-TKIs is mediated by FGF-23 signaling blockade; and significant weight loss associated with anti-FGFR1 mAb is deemed to be mediated by dysregulation of FGFR1-associated hypothalamic-based hunger and/or satiety circuits in the brain. Five Prime notes that FP-1039 does not bind FGF-23; and no hyperphosphatemia and weight loss have been observed in preclinical and completed Phase 1 study to date.

Sales Projections for FP-1039

FP-1039 is partnered to GlaxoSmithKline in the U.S., EU, and Canada; and we assume a commercial partnership for Asia for FP-1039. Under the GSK deal, FPRX is eligible to receive future contingent milestone payments (up to $435M, including $70M in development, $195M in regulatory and $170M in commercial) and tiered royalty payment (low-double digits to high teens) on FP-1039 net sales in GSK territories (with an additional 3% for U.S. co-promotion option to FPRX), aside from the already received upfront payment of $50M. Patents/patent applications covering FP-1039 in U.S. and EU include a composition of matter patent (expiry in 2026), specific dosage regimens patent (expiry in 2031), and pending patents for methods of treatment and selecting patients (projected expiry in 2032).

For FP-1039 in FGFR1-amplified solid tumors, we project peak WW annual sales of ~$1.9B, with royalty revenue of ~$290M to FPRX in 2026. Our assumptions include (1) tiered 12-18% royalty to FPRX on U.S. and EU sales of FP-1039 from GSK (no U.S. co-promotion option exercise), (2) an Asian partnership with estimated royalty of 20% from a potential partner, (3) a market entry in the U.S./EU/Asia territories in 2019/2020/2020, and (4) average annual treatment cost per patient of $150K/$100K/$100K in U.S./EU/Asia. Included in our estimates for FP-1039 indications are squamous NSCLC, head & neck cancer, and breast cancer. We forecast peak U.S./EU/Asia sales of ~$1,064M/~$594M/~$209M in 2026, which translates into ~$290M in peak royalty revenue to FPRX.

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Exhibit 9: Selected Products in Development Targeting FGF Pathway

Product	Description	Status	Ongoing Studies	Clinical Data	Marketing Rights
Dovitinib (TKI258)	Orally active FGFR (1-3)/VEGFR/PDGFR tyrosine kinase inhibitor	Phase 2	Various solid tumors, including metastatic endometrial cancer (n=80), HER2-/HR+ breast cancer (n=150), hormone-refractory prostate cancer (n=44), recurrent glioblastoma (n=55) among others, with data in Sept-Dec 2014	Phase 3 failed in mRCC in 3Q13 (in Ph2, in evaluable 51 mRCC pts, 8% PR & 37% SD; MTD of 500mg/day on a 5 day/2 day off dosing schedule in 28-day cycle; AEs include nausea (73%; G3 9%), diarrhea (64%, G3 9%), vomiting (56%, G3 5%), decreased appetite (48%, G3 7%), asthenia (36%, G3 10%)); in BC, 25% unconfirmed PR & 3% SD >6 months.	Novartis (orphan drug designation for adenoid cystic carcinoma granted by FDA on 9/26/13)
FP-1039 (GSK3052230)	Fibroblast growth factor (FGF) ligand trap	Phase 1b	Open-label, non-randomized study (n=up to 104) evaluating FP-1039 +/- paclitaxel/carboplatin or +/- docetaxel in 1st and 2nd line metastatic squamous NSCLC (FGFR1 amplification +) started in 3Q13, with data in 2H14	In 39 pts with solid tumors (not selected for FGFR1 gene amplification), no MTD was reached. Three DLTs, one at 0.75 mg/kg (Grade 2 urticaria) and two at 1 mg/kg (Grade 2 neutropenia/bowel perforation); 44% (n=17/39) achieved stable disease	GlaxoSmithKline (U.S./EU/Canada); Five Prime (co-promotion option in U.S.; RoW rights outside of EU/Canada)
E-3810	Orally active dual FGFR (1-2)/VEGFR tyrosine kinase inhibitor	Phase 1	Open-label, non-randomized dose expansion/dose escalation study (n=60) to assess safety, tolerability, and PK in adult pts with advanced solid tumors relapsed or refractory to standard therapy (started in 3Q10)	In evaluable 10 BC pts, 7 PR & 1 SD; MTD of 30mg/day, with DLTs of grade 4 proteinuria (thrombotic microangiopathy, TMA), grade 3 somnolence (reversible encephalopathy); hypertension, increased in TSH, asthenia, anorexia and diarrhea observed. No consistent hyperphosphatemia and no major CV toxicity	Les Laboratoires Servier/ EOS S.p.A.
BGJ-398	Orally active selective FGFR 1-3 tyrosine kinase inhibitor	Phase 1b	Open-label Phase 1b dose escalation study (n=55) in adult pts with advanced solid malignancies (PIK3CA mutation (+), FGFR1,2,3 alterations in Arms 1+3) to study the safety and efficacy of the combination of BGJ398 with BYL719 commenced in 9/13; estimated 1° study completion date in 3/16	In n=10/26 treated pts had FGFR1-ampilifcation (3 BC, 3 squamous NSLCL); 1 NSCLC had 33% reduction in lesions at 100mg. One DLT at 100mg (grade 3 AST/ALT elevation). AEs include diarrhea (37%), fatigue (37%), nausea (32%), dose-dependent hyperphosphatemia (could be managed with phosphate binders/diurectics)	Novartis
AZD-4547	Orally active FGFR1-3 tyrosine kinase inhibitor	Phase 1	Open-label, multicenter, dose escalation study (n=160) in adult pts with advanced solid malignancies resistant to standard therapies ongoing; estimated 1° study completion date in 2/14	In 21 pts, 1 PR in squamous NSCLC (lasting 12 wks) & 4 SD >24 wks (1 BC, 1 squamous NSCLC, 2 transitional cell carcinoma); tolerable continuous dose at 80mg BID; DLT of increased liver enzymes, stomatitis/mucositis, renal failure, hyperphosphatemia	AstraZeneca
JNJ-42756493	Orally active pan-FGFR tyrosine kinase inhibitor	Phase 1	Open-label, dose escalation study (n=48) in pts with advanced or refractory solid malignancies or lymphoma not candidates for approved or available therapies ongoing; estimated 1° study completion date in 5/14		Janssen Pharmaceuticals
LY-2874455	Orally active pan-FGFR tyrosine kinase inhibitor	Phase 1	Open-label, dose escalation study (n=100) in adult pts with advanced solid tumors, lymphoma or chronic lymphocytic leukemia ongoing; estimated 1° study completion date in 6/14		Eli Lilly
ARQ-087	Orally active pan-FGFR tyrosine kinase inhibitor	Phase 1	Open-label, dose escalation study (n=60) in pts with advanced solid tumors ongoing; estimated 1° study completion date in 11/15		ArQule

FGFR= fibroblast growth factor receptor; VEGF= vascular endothelial growth factor receptor; PDGFR= platelet-derived growth factor receptor; mRCC=metastatic renal cell carcinoma; BC=breast cancer NSCLC=non-small cell lung cancer; PR=partial response; SD=stable disease; TSH=thyroid-stimulating hormone; MTD=maximum tolerated dose; DLT=dose limiting toxicities

Source: Company reports and Jefferies

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FPA008: Inflammatory Diseases

FPA008 is an anti-colony stimulating factor-1 receptor (CSF-1R) humanized monoclonal antibody for the treatment of inflammatory diseases such as rheumatoid arthritis (RA). FPA008 is designed to block the action of IL-34 (discovered at FPRX) and CSF-1 in monocytes, macrophages, and osteoclasts via blocking CSF-1 receptor. Five Prime expects to start a Phase 1 trial of FPA008 in rheumatoid arthritis by YE13, with initial data potentially by YE14.

Blocking CSF-1R provides potential advantages - inhibition of multiple proinflammatory cytokines simultaneously and bone erosions (vs. current biologics targeting individual cytokines such as TNFα, IL-1, and IL-6). Activated monocytes and macrophages are elevated in inflamed tissues such as RA, lupus nephritis, multiple sclerosis (MS) and fibrosis, producing proinflammatory cytokines (tumor necrosis factor-alpha [TNFα)], interleukin-1 [IL-1], and IL-6). IL-34 and CSF-1, acting through CSF-1 receptor (CSF-1R), are proteins that activate monocytes and macrophages and are present at high levels in RA patients' joints (by immunohistochemistry). Thus, blocking CSF-1R (upstream from current biologics targeting individual proinflammatory cytokines) may prevent activation of monocytes and macrophages, which, in turn, inhibits the production of several proinflammatory cytokines simultaneously (TNFα, IL-1, and IL-6). In addition, cytokine macrophage colony stimulating factor (M-CSF) is essential for differentiation of osteoclasts (involved in bone resorption); thus, blocking CSF may directly inhibit bone erosions in RA.

Combined global sales of biologics used for inflammatory diseases reached ~$25B in 2012 (Exhibit 10). According to Five Prime, there are ~1.1M patients in the U.S. who are treated with 1st-line anti-TNF agents, with ~25% of those requiring a 2nd-line biologic or a newer JAK inhibitor. Selected marketed biologics for RA include anti-TNF agents, including Remicade (infliximab; anti-TNFα chimeric mouse-human antibody) by Johnson & Johnson/Merck (MRK, Hold)/Mitsubishi Tanabe Pharma (4508 JP, NC)/Xian Janssen (subsidiary of JNJ), Enbrel (etanercept; anti-TNFα receptor IgG1 fusion protein) by Amgen (AMGN, Buy)/Pfizer (PFE, Hold)/Takeda Pharmaceuticals (4502 JP, Hold), and Humira (adalimumab; anti-TNFα human mAb) by AbbVie (ABBV, Buy). Non-TNF targeting agents include Kineret (anakinra; IL-1R antagonist) by Swedish Orphan Biovitrum (SOBI SS, Buy), Orencia (abatacept; IgG1/CTLA-4 anti-T cell costimulatory fusion protein) by Bristol-Myers Squibb (BMY, Hold), and Actemra (tocilizumab; anti-IL-6R mAb) by Roche (ROG VX, Buy).

FPA008, a new biologic targeting CSF-1R, showed greater anti-inflammatory activity vs. Enbrel in mice. In preclinical studies, FPA008 treatment led to: (1) decreased inflammatory cytokines such as TNFα, IL-6, and IL-1β in *ex vivo* joint biopsies from RA patients; (2) greater reduction in mean joint swelling scores (0-5, highest=5) vs. Enbrel (roughly ~60% vs. ~40% reduction from vehicle by study day 35); (3) greater reduction in inflammation (~68% for FPA008 vs. ~31% for Enbrel from vehicle; severity index of 1.26/2.67/3.89 for FPA008/Enbrel/vehicle); and (4) greater reduction in bone damage (~96% for FPA008 vs. ~47% for Enbrel from vehicle; severity index of 0.07/0.97/1.82 for FPA008/Enbrel/vehicle); and (5) reduced CD16+ inflammatory monocyte population in cynomolgus monkey by ~90%, with little effect on CD16- classical monocytes (~10% reduction) by study day 29 (vs. control).

Phase 1 trial of FPA008 in lead indication rheumatoid arthritis to begin by YE13, with preliminary data potentially by YE14. Phase 1 study will first enroll healthy volunteers to assess safety/PK and tolerability (7 cohorts, n=~8/cohort), then transitions to RA patients (likely previously non-biologic users) to assess clinical activity and biomarkers. FPRX expects preliminary healthy volunteer data by YE14. Phase 2 trial

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will be a randomized study in likely 3rd-line RA patients (biologic experienced), comparing to placebo. Assuming Phase 3 start in 2016, we estimate potential regulatory approval/U.S. commercial launch in ~2020. Composition of matter patent for FPA008 expires in 2031 for both U.S. and EU (pending), with a methods of treatment patent pending (projected expiry in 2031-2033).

For FPA008 in RA, we project peak WW annual sales of ~$926M, with royalty revenue of ~$185M to FPRX in 2031. Our assumptions for FPA008 include (1) a worldwide commercialization partnership(s), with estimated 20% royalty on FPA008 sales to FPRX, (2) U.S./EU commercial launches in ~2020/2021, and (3) annual treatment cost per patient of $25K/$20K in the U.S./EU. At peak penetration of ~9%/~4% in the U.S./EU in 2nd-line biologic/JAK inhibitor patient candidates, we forecast peak U.S./EU sales of ~$704M/~$222M in 2031, translating into ~$185M in peak royalty revenue to FPRX.

We estimate ~60% of RA patients in the U.S. are treated with biologics. Prevalence of RA is estimated at 0.8% globally; women are 2-4x more likely to develop the disease vs. men. Annually, in the U.S., 1.9M patients are diagnosed with rheumatoid arthritis (RA), with ~95% of those being treated with a pharmacological agent. Biologic agents are typically employed when non-biologic disease-modifying antirheumatic drugs (DMARDs such as methotrexate) alone cannot control RA progression. As shown in Exhibit 10, the most widely used biologics are anti-TNFα agents (e.g., Remicade, Enbrel, Humira), commonly used as monotherapy or in combination with DMARDs after DMARD failures.

Approved by the FDA on November 6, 2012, Xeljanz (oral tofacitinib 2x daily; inhibitor of Janus kinases [JAKs]) from Pfizer, first in a new class of treatments for moderate to severe RA, is indicated for the treatment of adult patients with moderately-to-severely active RA who have had an inadequate response or intolerance to methotrexate. In 1H13, Xeljanz generated $33M in sales. However, on July 26, 2013, the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) voted not to recommend marketing authorization for Xeljanz (tofacitinib). The decision followed a re-examination of initial recommendations made on April 25, 2013, after the committee decided the risks of taking the medication did not outweigh the benefits.

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Exhibit 10: Select Marketed Biologics for Rheumatoid Arthritis (RA)

Product	Description	Indication	Status	Marketing Rights	Patent Expiry
Remicade (infliximab)	Anti-TNFα chimeric mouse-human antibody	Rheumatoid arthritis (including inhibiting the progression of structural damage), Crohn's disease, ankylosing spondylitis, psoriatic arthritis, plaque psoriasis, ulcerative colitis	Approved in 1999 in U.S., 1999 in EU WW sales of $7.7B in 2012	Johnson & Johnson (U.S.); Merck (EU); Mitsubishi Tanabe Pharma (Japan); Xian Janssen (China)	2014/2015 in U.S./EU
Enbrel (etanercept)	Anti-TNFα receptor-IgG1 fusion protein	Rheumatoid arthritis (including inhibiting the progression of structural damage), polyarticular course juvenile rheumatoid arthritis, psoriatic arthritis	Approved in 1998 in U.S., 2000 in EU WW sales of $4.2B in 2012	Pfizer (co-promote in U.S./Canada; exclusive rights ex-U.S./Canada excluding Japan); Amgen (co-promote in U.S., Canada); Takeda (Japan)	2028/2015 in U.S./EU
Kineret (anakinra)	IL-1R antagonist	Rheumatoid arthritis	Approved in 2001 in U.S., 2002 in EU WW sales of $284M in 2012	SOBI/Amgen	2020/2015-2017 in U.S./EU
Humira (adalimumab)	Anti-TNFα human monoclonal antibody	Rheumatoid arthritis (including inhibiting the progression of structural damage), juvenile idiopathic arthritis, psoriatic arthritis, ankylosing spondylitis, Crohn's disease, plaque psoriasis	Approved in 2002 in U.S., 2003 in EU WW sales of $9.3B in 2012	Abbvie	2016/2018 in U.S./EU
Orencia (abatacept)	IgG1/CTLA-4 anti-T cell costimulatory fusion protein	Rheumatoid arthritis (including inhibiting the progression of structural damage)	Approved in 2005 in U.S., 2007 in EU; WW sales of $1.2B in 2012	Bristol-Myers Squibb	2019/2017 in U.S./EU
Cimzia (certolizumab pegol)	Anti-TNFα human monoclonal antibody	Rheumatoid arthritis, Crohn's disease	Approved in 2009 in U.S. and EU WW sales of $467M in 2012	UCB	2024/2021-2024 in U.S./EU
Simponi (golimumab)	Anti-TNFα human monoclonal antibody	Rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis	Approved in 2009 in U.S. and EU WW sales of $607M in 2012	Johnson & Johnson (U.S., Canada), Merck (EU)	2026/2021 in U.S./ex-U.S.
Actemra (tocilizumab)	Anti-IL-6R monoclonal antibody	Rheumatoid arthritis	Approved in 2010 in U.S., 2009 in EU WW sales of $905M in 2012	Roche	2022/2017 in U.S./EU

TNF= tumor necrosis factor; IL= interleukin; CTLA= cytotoxic T-lymphocyte antigen

Source: Company reports and Jefferies

Competition

Products targeting CSF pathway are in early stage of development for RA (Exhibit 11), including JNJ-40346527 (orally active anti-CSF1R TKI; Phase 2a) by Johnson & Johnson, and PLX5622 (orally active anti-CSF1R TKI; post-Phase 1b/2a) by Daichii Sankyo (4568 JP, Buy). FPA008 is the only antibody product specifically targeting CSF1R (entering clinic in near term) vs. small molecule CSF1R-TKIs.

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Exhibit 11: Select Products in Development Targeting CSF Pathway for Rheumatoid Arthritis (RA)

Product	Description	Status	Comments	Marketing Rights
JNJ-40346527	Orally active anti-CSF-1R tyrosine kinase inhibitor	Phase 2a	Multicenter, randomized study (n=96) of oral JNJ-40346527 vs. placebo in RA pts not currently controlled on DMARD therapy with 1° endpoint of change from baseline in the Disease Activity Score (DAS28) completed in 4/13 (estimated); data not available.	Johnson & Johnson
PLX5622	Orally active anti-CSF-1R tyrosine kinase inhibitor	Phase 1b/2a	Double-blind Phase 1b study (n=26) in adults RA pts comparing PLX5622 + methotrexate vs. methotrexate alone completed in 10/11; data not available.	Daichii Sankyo
FPA008	Anti-CSF-1R humanized monoclonal antibody	pre-Phase 1	Phase 1 to potentially start in 4Q13 with preliminary data by YE14, assessing safety, tolerability and early clinical activity in healthy volunteers and RA pts	Five Prime

CSF1R= colony-stimulating factor-1 receptor; SC= subcutaneous; IV= intravenous; DMARD= disease-modifying anti-rheumatic drug; GM-CSF= granulocyte macrophage colony-stimulating factor

Source: Company reports and Jefferies

FPA144: FGFR2-amplified Gastric Cancer

FPA144 is a monoclonal antibody against fibroblast growth factor receptor 2b (FGFR2b). Originally licensed from Galaxy Biotech in 12/11, Five Prime owns worldwide rights to FPA144. FGFR2 gene-amplified gastric cancer represents ~3-9% of total gastric cancer cases (2,200-6,600 cases in the U.S.; ~31K - 93K cases RoW). FPRX expects to start a Phase 1 trial in FGFR2-amplified gastric cancer in 2H14, with data potentially by YE15.

Gastric cancer is the fourth most commonly diagnosed cancer and the second leading cause of cancer death worldwide. According to the American Cancer Society, approximately 21,600 cases of gastric cancer will be diagnosed in the U.S. in 2013, resulting in ~10,990 mortalities. Lifetime risk of developing gastric cancer is 1 in 116, with a slightly higher incidence in men than women, and more common in underdeveloped countries vs. U.S. According to Five Prime, the five-year survival rate of metastatic gastric cancer is only 4%.

FGFR2 gene amplification is associated with a poor prognosis. One study showed that FGFR2-amplified gastric cancers (with abnormally high levels of FGFR2b protein) confer a worse prognosis vs. FGFR2-amplification negative gastric cancers, with cumulative survival of roughly ~40% vs. ~65% at 60 months of follow-up, respectively (p=0.012) ("Fibroblast growth factor receptor 2 gene amplification status and its clinicopathologic significance in gastric carcinoma," *Human Pathology* 2012, 43: 1559-1566). FGFR2 gene amplification and protein overexpression can be readily detected by companion diagnostics fluorescent *in situ* hybridization and immunohistochemistry, respectively.

FPRX estimates ~2,200-6,600 FGFR2-amplified gastric cancer patients in the U.S., a potential orphan indication. As previously described, aberrant fibroblast growth factor (FGF) signaling can promote tumor development by directly driving cancer

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cell proliferation and survival, and by supporting tumor angiogenesis. FGF is a significant oncogenic driver, with FGF1, FGF3, FGF7, FGF10, and FGF22 ligands (but not FGF23 according to Five Prime) having a high affinity for fibroblast growth factor receptor 2 (FGFR2). FGFR2 amplification frequency is ~5.6% (meta-analysis range of 2.9-9.3%; confidence interval of 4.7-6.7%), with estimated 2,200 to 6,600 FGFR2-amplified gastric cancer patients in the U.S. In ex-U.S., at a prevalence of over 1 million gastric cancer patients in 2012, Five Prime estimates ~31,000 to 93,000 FGFR2-amplified gastric cancer patients.

Preclinical data showed FPA144 blocks growth of FGFR2-amplified gastric cancer in a dose-dependent fashion. In FGFR2-amplified gastric cancer animal model, treatment with FPA144 doses at 1mg/kg, 3mg/kg and 10mg/kg resulted in mean tumor volume reduction by roughly ~75%, ~85%, and ~95%, respectively, from control vehicle (albumin) at 25 days post inoculation.

FPRX plans to begin a Phase 1 trial of FPA144 in FGFR2-amplified gastric cancer in 2H14, with data potentially by YE15. Assuming Phase 3 start in 2017, we estimate potential regulatory approval/launch in ~2020. Composition of matter patent for FPA144 expires in 2029 for both U.S. and EU (pending), with a methods of treatment patent pending (projected expiry in 2029).

For FPA144 in FGFR2-amplified gastric cancer, we project peak WW annual sales of ~$876M, with net royalty revenue of ~$158M to FPRX in 2029. Our assumptions for FPA144 include a worldwide commercialization partnership, commercial launches in ~2020 and average treatment cost of ~$150K/$100K per patient in U.S./ex-U.S. FPRX is obligated to pay a tiered high-single to low-double digit royalty on FPA144 sales to the original licensor Galaxy Biotech. As such, we estimate FPRX to received royalty of 18% on sales, net of Galaxy royalty obligation. At peak penetration of ~35%/~18% in U.S./ex-U.S., we forecast peak U.S./ex-U.S. sales of ~$300M/~$576M in 2029, translating into ~$158M in peak net royalty revenue to FPRX.

Biologics for Gastric Cancer & Competition

Herceptin (trastuzumab), the only approved biologic for gastric cancer, showed overall survival benefit of 2.5 months in 1st-line HER2-amplified metastatic gastric cancer. On October 20, 2010, the FDA approved Herceptin for HER2-overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma. In a pivotal open-label, randomized (1:1), multi-center Phase 3 trial (n=594), Herceptin in combination with chemotherapy (cisplatin and fluoropyrimidine) showed overall survival (OS) benefits of 2.5 months vs. chemotherapy alone (OS of 13.5 months vs. 11.0 months; 95% CI 0.60-0.91; p=0.0038) in 1st-line HER2 gene-amplified metastatic gastric or gastroesophageal junction adenocarcinoma patients. HER2-amplified metastatic gastric cancer accounts for ~15% of total gastric cancer cases; Herceptin received an orphan designation for HER2-amplified gastric cancer in 2010.

Most advanced biologic in development for gastric cancer is ramucirumab (anti-VEGFR2 mAb), with OS benefit of 1.4 months in 2nd-line metastatic gastric cancer. Ramucirumab from Eli Lilly is an anti-VEGFR2 monoclonal antibody in Phase 3 development. First Phase 3 trial (REGARD; n=355) was a global, double-blind, placebo-controlled, randomized (2:1) trial in patients with metastatic gastric or gastroesophageal junction adenocarcinoma progressing on first-line platinum- and/or fluoropyrimidine containing combination therapy. The study compared ramucirumab 8 mg/kg IV every 2 weeks plus best supportive care vs. best supportive care alone until

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disease progression, unacceptable toxicity, or death. Announced in 10/12, ramucirumab showed a statistically significant benefit in overall survival (OS) and progression-free survival (PFS) vs. the control group, with median OS of 5.2 months vs. 3.8 months (hazard ratio of 0.776; 95% CI 0.603-0.998, p=0.0473) and median PFS of 2.1 months vs. 1.3 months (hazard ratio of 0.483; 95% CI 0.376-0.620; p <0.0001), respectively.

On 9/26/13, LLY announced positive top-line results from a second Phase 3 trial (RAINBOW; n=665) for ramucirumab in gastric cancer, meeting primary endpoint of improved OS and secondary endpoint of PFS (data to be presented at a future scientific meeting TBD in 1H14). The study compared ramucirumab plus paclitaxel vs. paclitaxel alone in patients with advanced (locally advanced, unresectable or metastatic) gastric cancer that was refractory to or progressive after initial chemotherapy.

Multiple products for gastric cancer targeting FGF pathway in early-stage of development (Exhibit 12). New approaches to the treatment of FGFR2-amplified gastic cancer include small molecule FGFR tyrosine kinase inhibitors (FGFR-TKIs) and anti-FGFR antibodies, including AZD4547 (orally active selective FGFR1,2,3 TKI; Phase 2a) by AstraZeneca, dovitinib/TKA258 (orally active dual VEGFR-FGFR TKI; Phase 2) and BGJ-398 (orally active selective FGFR1,2,3 TKI; Phase 1b) by Novartis, LY-2874455 (orally active pan-FGFR TKI by Eli Lilly, and GP369 (anti-FGFR2-IIIb monoclonal antibody; preclinical) by AVEO Pharmaceuticals (AVEO, Hold).

Exhibit 12: Selected Products in Development Targeting FGF Pathway for Gastric Cancer

Product	Description	Status	Comments	Marketing Rights
AZD4547	Orally active selective FGFR1,2, 3 tyrosine kinase inhibitor	Phase 2a	Open-label study (n=240) in advanced gastric or GE junction cancer (FGFR2 polysomy or amplification +), comparing AZD4547 vs. paclitaxel with 1° endpoint of PFS; estimated 1° completion date of 5/15	AstraZeneca
Dovitinib (TKA258)	Orally active dual VEGFR/FGFR tyrosine kinase inhibitor	Phase 2	Open-label, single arm study (n=564) in salvage setting in 1st or 2nd line chemotherapy failures with path-proven metastatic or unresectable gastric or GE junction adenocarcinoma (FGFR2 amplification+), with 1° endpoint of PFS and estimated 1° completion date of 2/15	Novartis
BGJ-398	Orally active selective FGFR1,2, 3 tyrosine kinase inhibitor	Phase 1b	Open-label Phase 1b dose escalation study (n=55) in advanced solid malignancies (PIK3CA mutation (+), FGFR1,2,3 alterations in Arms 1+3) to assess safety and efficacy of BGJ398 with BYL719 (PI3Ki) combination, commenced in 9/13 & estimated 1° study completion date in 3/16	Novartis
LY-2874455	Orally active pan-FGFR tyrosine kinase inhibitor	Phase 1	Open-label, dose-escalation study (n=100) in advanced or mestatic cancer initiated in 12/2010 with estimated primary completion date of 6/14	Eli Lilly
FPA144	Anti-FGFR2b humanized monoclonal antibody	Preclinical	Phase 1 to potentially start in 2H14 in gastric cancer (FGFR2b amplification +)	Five Prime
GP369	Anti-FGFR2-IIIb monoclonal antibody	Preclinical	N/A	AVEO

FGFR= fibroblast growth factor receptor; GE= gastroesophageal; PFS= progression-free survival; VEGFR= vascular endothelial growth factor receptor

Source: Company reports and Jefferies

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Management Team

Five Prime's board of directors is comprised of one insider and six outsiders, including Lewis T. "Rusty" Williams, M.D., Ph.D., CEO of Five Prime; Brian Atwood, Chairman of the board at Five Prime and managing director of venture capital firm Versant Ventures; Franklin M. Berger, CFA, consultant to biotechnology industry companies; Fred E. Cohen, M.D., D. Phil., partner and managing director of TPG Biotechnology Partners, L.P; R. Lee Douglas, independent consultant to biotechnology companies; Peder K. Jensen, M.D., president of consulting firm Bay Way Consultants, LLC; and Mark D. McDade, Executive Vice President, Established Brands, Solutions and Supply at global pharmaceutical company UCB S.A.

Lewis T. "Rusty" Williams, M.D., Ph.D. - Founder, President, and Chief Executive Officer

Since founding Five Prime in 2001, Dr. Williams has served as CEO since August 2011 and as a member of the board of directors since January 2002. Prior to FPRX, Dr. Williams served as Chief Scientific Officer at Chiron Corporation (acquired by Novartis), a professor of medicine at the University of California, San Francisco and director of UCSF's Cardiovascular Research Institution & Daiichi Research Center, and a faculty member of Harvard Medical School and Massachusetts General Hospital. He co-founded COR Therapeutics (acquired by Millennium Pharmaceuticals in 2001). Dr. Williams received a B.S. from Rice University and an M.D./Ph.D. from Duke University.

Julie Hambleton, M.D. - Senior Vice President and Chief Medical Officer

Dr. Hambleton joined Five Prime as CMO in December 2012. Prior to FPRX, she served as VP of Clinical Development at Clovis Oncology (CLVS, NC) (2010-2012), various roles at Genentech (2003-2010; acquired by Hoffman-LaRoche AG in 2009) with most recently as Group Medical Director, Global Clinical Development. In addition, she held academic positions in the Division of Hematology/Oncology at the University of California, San Francisco, most recently as Associate Professor of Clinical Medicine. Dr. Hambleton received a B.S. from Duke University and an M.D. from Case Western Reserve University School of Medicine. She is board certified in hematology and internal medicine.

W. Michael Kavanaugh, M.D. - Senior Vice President and Chief Scientific Officer

Dr. Kavanaugh has served as CSO since January 2013 and SVP of R&D at Five Prime (2009-2013). Prior to FPRX, he served at Novartis Vaccines and Diagnostics (formerly Chiron), with most recently as VP of Novartis Vaccines & Diagnostics and Executive Director of Novartis Institutes of Biomedical Research (2006-2009). Currently, he is an Attending Staff Physician, Coronary Intensive Care Unit at the San Francisco Veterans Administration Medical Center and an Associate Clinical Professor of Medicine at the University of California, San Francisco. Dr. Kavanaugh holds a B.S. in Molecular Biochemistry and Biophysics from Yale University and an M.D. from Vanderbilt University. He is board certified in Cardiovascular Disease and Internal Medicine.

Aron Knickerbocker – Senior Vice President and Chief Business Officer

Mr. Knickerbocker has served as Chief Business Officer since April 2012 and VP of Business Development (2009-2012) at FPRX. Previously, he held various positions at Genentech (2001-2009), with most recently as Senior Director of Business Development (2005-2009); Director of Commercial Development at ALZA Corporation (later acquired by Johnson & Johnson); Senior Manager, and Corporate Development at Amgen. Mr. Knickerbocker holds an A.B. in biology from Washington University in St. Louis and an M.B.A. from the University of Michigan.

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Francis Sarena – Senior Vice President, General Counsel and Secretary
Mr. Sarena joined FPRX in 2010 and has served as SVP since January 2013. Prior to FPRX, he served as VP, General Counsel and Secretary (2008-2010) at Facet Biotech Corporation (a spin-off from PDL BioPharma (PDLI, NC) and acquired by Abbott Laboratories in 2010) and various positions at PDL BioPharma (2006-2008), with most recently as VP, General Counsel and Secretary. Mr. Sarena holds a B.S. in Finance from San Francisco State University and a J.D. from University of California, Berkeley.

Mark Belsky – Vice President, Finance
Prior to joining as VP of finance at Five Prime in October 2009, Mr. Belsky served as VP of Finance at Cell Genesys (acquired by BioSante Pharmaceuticals, which merged with ANI Pharmaceuticals [ANIP, NC]) in 2006-2009, VP of Global Commerce at Visa (V, Buy), CFO at Active Aero Group, and CFO at DataWave Systems. He started his career as an auditor with Coopers & Lybrand and is a certified public accountant. He received a B.S. in Accounting from Wayne State University and an M.B.A. from University of Michigan.

Financial Projections and Analysis

As of June 30, 2013, Five Prime had ~$28M in cash and cash equivalents. With the recent initial public offering in 9/13 (net proceeds of $67.4M), we estimate Five Prime's cash to be sufficient to fund operations through ~2015, potentially requiring additional financing or potentially non-dilutive financing via a partnership in 2015. With projected commercial launches of FP-1039 in ~2019-2020, FPA008 in ~2020-2021 and FPA144 in ~2020, we forecast Five Prime to reach sustainable profitability in ~2022.

On 9/23/13, FPRX completed an initial public offering of 5,520,000 shares of common stock at $13/sh, with net proceeds of ~$67.4M; Jefferies served as a joint book-running manager.

Revenues

Research/early drug discovery and development collaborations have been the sole source of revenue for FPRX, with >~$220M generated to date. As we do not anticipated royalty revenues from product sales until ~2019, we expect existing collaborations and future collaborations continue to be the primary source of revenues in the near future.

For three drug candidates in development - FP-1039 in Phase 1b, FPA008 entering clinic by YE13 and FPA144 in preclinic – we do not expect royalty revenue on sales until ~2019. Aside from the GSK partnership for FP-1039 in the U.S./EU/Canada (12-18% royalty on sales to FPRX), we assume a commercial partnership for FP-1039 in Asia (~20% royalty on sales to FPRX), and worldwide commercial partnerships for FPA008 and FPA144 (~20% royalty and 18% royalty on sales to FPRX, respectively).

Collaboration revenue
Aside from the FP-1039 partnership with GSK, Five Prime has three active discovery collaborations, including two with GSK (muscle and respiratory disease programs) and one with UCB (fibrosis-related immunologic and central nervous system disease program) (Exhibit 13). As shown in Exhibit 14, future long-term revenue potential from these programs are significant, with up to $124.3M per target for GSK muscle collaboration, up to $193.8M per target for GSK respiratory collaboration, and up to $92.2M per target for UCB collaboration. Additionally, potential contingent milestone payments related to FP-1039 from partner GSK totals up to $435M, including $70M in development-related, $195M in regulatory-related and $170M in commercial-related. As shown in Exhibit 15,

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for 2013-2016, we project total collaboration revenues of ~$12M, $12M, $21M, and $26M, respectively.

Royalty revenue from product sales

For FP-1039 in FGFR1-amplified solid tumors (including non-small cell lung cancer, head and neck cancer, and breast cancer), we project U.S./EU/Asia combined sales of ~$5M, $51M, $215M, $479M, and $846M for 2019-2023, respectively, reaching ~$1.9B in 2026. Given existing commercial partnership with GSK and assumed commercial partnership in Asia, we estimate royalty revenue to FPRX (assumed tiered royalty rate of 12-18%, excluding 3% U.S. co-promote option; assumed royalty rate of 20% in Asia) of ~$1M, $10M, $36M, $74M, and $131M for 2019-2023, respectively, reaching $290M in 2026.

For FPA008 in inflammatory disease, we only assume for RA, with projected U.S./EU combined sales of ~$50M, $160M, $261M, $374M, and $468M for 2020-2024, respectively, reaching ~$925M in 2031. As we assume a commercial partnership for FPA008 in the U.S. and EU, we estimate royalty revenue to FPRX (assumed royalty rate of 20%) of ~$10M, ~$32M, $52M, $75M, and $94M for 2020-2024, respectively, reaching ~$185M in 2031.

For FPA144 in FGFR2-amplified gastric cancer, we project worldwide sales of ~$11M, $71M, $168M, $289M, and $436M for 2020-2024, respectively, reaching ~$876M in 2029. As we assume a worldwide commercial partnership for FPA144, we estimate royalty revenue to FPRX (assumed royalty rate of 18%, net of royalty to Galaxy) of ~$2M, $13M, $30M, $52M, and $78M for 2020-2024, respectively, reaching ~$158M in 2029.

Exhibit 13: Current Discovery Collaborations

Partner	Duration	Indication	Upfront Cash	Equity Purchase	Research Funding Received
GSK	7/10 - 5/14	Muscle disease (sarcopenia and cachexia)	$7.0M	$7.5M	$16M
GSK	4/12 - 4/16	Respiratory diseases (refractory asthma and COPD)	$7.5M	$10.0M	$2M
UCB	3/13 - 3/16	Fibrosis-related immunologic & CNS diseases	$6.0M	N/A	$2.2M

Source: Company reports and Jefferies

Exhibit 14: Potential Collaboration Revenues by Programs from Current Partners

	GSK (FP-1039)	GSK (Muscle)	GSK (Respiratory Track 1)	GSK (Respiratory Track 2)	UCB
Research Funding	*	$0.9M	$8.5M		$6.4M
Selection and Option	$50.0M **	$1.8M	$1.8M	$24.8M	$0.4M
Development-related	$70.0M ***	$28.8M	$28.5M	$36.5M	$11.8M
Regulatory-related	$195.0M	$40.0M	$40.0M	$53.0M	$20.0M
Commercial-related	$170.0M	$54.0M	$54.0M	$79.5M	$60.0M
Total Contingent	**$435.0M**	**$124.3M (per target)**	**$124.3M (per target)**	**$193.8M (per target)**	**$92.2M (per target)**
Royalties	Low- double digits to high- teens	Low- to mid-single digit	Low- to mid-single digit	High- single to low- double digit	Low- to mid-single digit

* GSK is responsible for conducting FP-1039 related research activities in U.S.
** GSK paid FPRX an upfront $50M fee in 2011 in connection with the FP-1039 license
*** Completion of Phase 1b/initiation of Phase 2 triggers a $5M/$15M payment, respectively

Source: Company reports and Jefferies

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Exhibit 15: Projected Collaboration Revenues from Current Partners

Program	2H13E	2014E	2015E	2016E
GSK - FP-1039 *	-	$5.0	$15.0	$25.0
GSK Muscle	$2.4	$1.5	-	-
GSK Respiratory	$1.3	$2.6	$2.6	$1.3
UCB Fibrosis	$1.3	$3.0	$3.2	-
Total ($ in M)	**$5.0**	**$12.1**	**$20.8**	**$26.3**

* For 2014/2015, assume completion of Phase 1b/initiation of Phase 2 with payment of $5M/$15M from GSK, respectively; assume $25M milestone from GSK in 2016 upon Phase 3 initiation

Source: Company reports and Jefferies

Expenses

Given the lead drug candidate (FP-1039) partnered with GSK and early-stage of its proprietary products (FPA008 and FPA144), we expect moderate increases in OpEx for FPRX in 2013-2015, with estimated OpEx of $44M/$50M/$58M, +16%/+15%/+15% y/y for 2013-2015, respectively. For R&D spending, we forecast ~$34M in 2013 (+18% y/y), ~$39M in 2014 (+15% y/y), and $45M in 2015 (+15% y/y) with anticipated initiation of Phase 1 trials for FPA008 by YE13 and FPA144 in 2H14. For SG&A spending, we assume modest growth, with ~$10M in 2013 (+10% y/y), ~$11M in 2014 (+15% y/y), and ~$13M in 2015 (+14% y/y).

Valuation

Our $20 PT is based on an NPV analysis of ~$9/sh for FP-1039 in FGFR1-amplified solid tumors (60% probability–adjusted for squamous NSCLC & 50% probability-adjusted for other solid tumors [head & neck cancer and breast cancer] on peak royalty revenues of ~$290M in 2026), ~$3/sh for FPA008 in rheumatoid arthritis (50% probability-adjusted on peak royalty revenues of $185M in 2031), ~$2/sh for FPA144 in FGFR2-amplified gastric cancer (50% probability-adjusted on peak royalty revenues of ~$158M in 2029), and ~$6/sh for technology value, using an annual discount rate of 12%.

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Exhibit 16: Total FP-1039 Sales Projections in FGFR1-amplified Solid Tumors ($ in '000)

	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
U.S. sales	5,255	41,704	131,726	270,861	474,589	710,143	932,995	1,063,853	537,246	434,095	416,514	399,645	383,459	367,929
EU sales	-	8,916	65,377	148,568	267,396	415,908	504,980	594,035	299,988	242,390	232,573	223,154	214,116	205,445
Asia sales		-	17,911	59,699	104,462	149,217	179,042	208,861	238,675	120,531	97,389	93,445	89,660	86,029
Total sales	**$5,255**	**$50,619**	**$215,014**	**$479,127**	**$846,447**	**$1,275,267**	**$1,617,018**	**$1,866,750**	**$1,075,909**	**$797,016**	**$746,476**	**$716,244**	**$687,236**	**$659,403**
Royalty to FPRX	**$631**	**$9,657**	**$35,592**	**$73,932**	**$131,047**	**$196,398**	**$252,419**	**$290,478**	**$127,574**	**$100,656**	**$96,579**	**$92,668**	**$88,915**	**$85,314**
y/y growth %		*1431%*	*269%*	*108%*	*77%*	*50%*	*29%*	*15%*	*-56%*	*-21%*	*-4%*	*-4%*	*-4%*	*-4%*

Source: Company reports and Jefferies

Exhibit 17: U.S. Sales Projections for FP-1039 in FGFR1-amplified Solid Tumors ($ in '000)

Squamous non-small cell lung cancer (NSCLC)	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**	**2031E**	**2032E**
Prevalence of FGFR1 amplification (+) in squamous NSCLC	11,677	11,793	11,911	12,031	12,151	12,272	12,395	12,519	12,644	12,771	12,898	13,027	13,158	13,289
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.3%	2.0%	5.0%	9.0%	15.0%	20.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
# of patients treated with FP-1039 for squamous NSCLC	35	236	596	1,083	1,823	2,454	3,099	3,130	3,161	3,193	3,225	3,257	3,289	3,322
Annual treatment cost for FP-1039	150,000	151,500	153,015	154,545	156,091	157,652	159,228	160,820	80,410	64,328	61,112	58,056	55,153	52,396
% annual price increase	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in squamous NSCLC ($ in '000)	5,255	35,734	91,131	167,334	284,495	386,951	493,411	503,328	254,181	205,378	197,060	189,079	181,422	174,074
y/y growth %		*580.1%*	*155.0%*	*83.6%*	*70.0%*	*36.0%*	*27.5%*	*2.0%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.0%*	*-4.1%*	*-4.1%*

Head and neck cancer	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**	**2031E**	**2032E**
Prevalence of FGFR1 amplification (+) in head and neck cancer	18,046	18,226	18,409	18,593	18,779	18,966	19,156	19,348	19,541	19,736	19,934	20,133	20,335	20,538
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.1%	0.5%	1.3%	2.3%	3.8%	5.0%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%
# of patients treated with FP-1039 for head and neck cancer	-	14	92	232	423	711	958	1,209	1,221	1,234	1,246	1,258	1,271	1,284
Annual treatment cost for FP-1039	150,000	151,500	153,015	154,545	156,091	157,652	159,228	160,820	80,410	64,328	61,112	58,056	55,153	52,396
% annual price increase	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in head and neck cancer ($ in '000)	-	2,071	14,084	35,918	65,951	112,128	152,509	194,468	98,206	79,351	76,137	73,053	70,095	67,256
y/y growth %			*580.1%*	*155.0%*	*83.6%*	*70.0%*	*36.0%*	*27.5%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.0%*	*-4.1%*	*-4.1%*

Breast cancer	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**	**2031E**	**2032E**
Prevalence of FGFR1 amplification (+) in breast cancer	33,969	34,308	34,651	34,998	35,348	35,701	36,058	36,419	36,783	37,151	37,523	37,898	38,277	38,659
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.1%	0.5%	1.3%	2.3%	3.8%	5.0%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%
# of patients treated with FP-1039 for breast cancer	-	26	173	437	795	1,339	1,803	2,276	2,299	2,322	2,345	2,369	2,392	2,416
Annual treatment cost for FP-1039	150,000	151,500	153,015	154,545	156,091	157,652	159,228	160,820	80,410	64,328	61,112	58,056	55,153	52,396
% annual price increase	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in breast cancer ($ in '000)	-	3,898	26,511	67,610	124,143	211,064	287,075	366,057	184,859	149,366	143,317	137,512	131,943	126,599
y/y growth %			*580.1%*	*155.0%*	*83.6%*	*70.0%*	*36.0%*	*27.5%*	*-49.5%*	*-19.2%*	*-4.0%*	*-4.1%*	*-4.1%*	*-4.1%*

Royalty to FPRX on FP-1039 U.S. sales (*assume tiered royalty rate of 12-18%) ($ in '000)	**$631**	**$5,004**	**$15,807**	**$35,212**	**$66,442**	**$106,521**	**$139,949**	**$159,578**	**$64,470**	**$52,091**	**$49,982**	**$47,957**	**$46,015**	**$44,152**

*Excludes FPRX option to co-promote in the U.S. for additional 3% to royalty

Source: Company reports and Jefferies

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Exhibit 18: EU Sales Projections for FP-1039 in FGFR1-amplified Solid Tumors ($ in '000)

Squamous NSCLC	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of FGFR1 amplification (+) in squamous NSCLC	12,738	12,866	12,994	13,124	13,255	13,388	13,522	13,657	13,794	13,932	14,071	14,212	14,354	14,497
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.3%	2.2%	5.0%	9.0%	14.0%	17.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
# of patients treated with FP-1039 for squamous NSCLC	-	39	286	656	1,193	1,874	2,299	2,731	2,759	2,786	2,814	2,842	2,871	2,899
Annual treatment cost for FP-1039	100,000	99,000	98,010	97,030	96,060	95,099	94,148	93,207	46,603	37,283	35,418	33,648	31,965	30,367
% annual price increase		*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in squamous NSCLC ($ in '000)	-	3,821	28,019	63,672	114,598	178,246	216,420	254,587	128,566	103,881	99,674	95,637	91,764	88,048
y/y growth %			*633.3%*	*127.3%*	*80.0%*	*55.5%*	*21.4%*	*17.6%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.1%*	*-4.1%*

Head and neck cancer	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of FGFR1 amplification (+) in head and neck cancer	31,846	32,164	32,486	32,811	33,139	33,470	33,805	34,143	34,484	34,829	35,177	35,529	35,884	36,243
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.1%	0.6%	1.3%	2.3%	3.5%	4.3%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
# of patients treated with FP-1039 for head and neck cancer	-	24	179	410	746	1,171	1,437	1,707	1,724	1,741	1,759	1,776	1,794	1,812
Annual treatment cost for FP-1039	100,000	99,000	98,010	97,030	96,060	95,099	94,148	93,207	46,603	37,283	35,418	33,648	31,965	30,367
% annual price increase		*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in head and neck cancer ($ in '000)	-	2,388	17,512	39,795	71,624	111,404	135,263	159,117	80,354	64,926	62,296	59,773	57,353	55,030
y/y growth %			*633.3%*	*127.3%*	*80.0%*	*55.5%*	*21.4%*	*17.6%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.0%*	*-4.1%*

Breast cancer	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of FGFR1 amplification (+) in breast cancer	36,092	36,453	36,817	37,185	37,557	37,933	38,312	38,695	39,082	39,473	39,868	40,266	40,669	41,076
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.1%	0.6%	1.3%	2.3%	3.5%	4.3%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
# of patients treated with FP-1039 for breast cancer	-	27	202	465	845	1,328	1,628	1,935	1,954	1,974	1,993	2,013	2,033	2,054
Annual treatment cost for FP-1039	100,000	99,000	98,010	97,030	96,060	95,099	94,148	93,207	46,603	37,283	35,418	33,648	31,965	30,367
% annual price increase		*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in breast cancer ($ in '000)	-	2,707	19,846	45,101	81,174	126,258	153,298	180,332	91,068	73,583	70,603	67,743	65,000	62,367
y/y growth %			*633.3%*	*127.3%*	*80.0%*	*55.5%*	*21.4%*	*17.6%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.1%*	*-4.1%*

Total FP-1039 EU Sales by GSK ($ in '000)	-	$8,916	$65,377	$148,568	$267,396	$415,908	$504,980	$594,035	$299,988	$242,390	$232,573	$223,154	$214,116	$205,445
y/y growth %			*633.3%*	*127.3%*	*80.0%*	*55.5%*	*21.4%*	*17.6%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.1%*	*-4.1%*
Royalty to FPRX on FP-1039 EU sales (assume tiered royalty rate of 12-18%) ($ in '000)	-	$1,070	$7,845	$17,828	$34,761	$54,068	$70,697	$83,165	$38,998	$29,087	$27,909	$26,778	$25,694	$24,653

Source: Company reports and Jefferies

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Exhibit 19: Asia Sales Projections for FP-1039 in FGFR1-amplified Solid Tumors ($ in '000)

Squamous NSCLC	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of FGFR1 amplification (+) in squamous NSCLC	40,338	40,741	41,149	41,560	41,976	42,395	42,819	43,248	43,680	44,117	44,558	45,004	45,454	45,908
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.3%	1.0%	1.8%	2.5%	3.0%	3.5%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
# of patients treated with FP-1039 for squamous NSCLC	-	122	411	727	1,049	1,272	1,499	1,730	1,747	1,765	1,782	1,800	1,818	1,836
Annual treatment cost for FP-1039	100,000	99,000	98,010	97,030	96,060	95,099	94,148	93,207	46,603	37,283	35,418	33,648	31,965	30,367
% annual price increase		*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in squamous NSCLC ($ in '000)	0	12,100	40,330	70,570	100,804	120,953	141,097	161,238	81,425	65,792	63,127	60,570	58,117	55,764
y/y growth %			*233.3%*	*75.0%*	*42.8%*	*20.0%*	*16.7%*	*14.3%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.1%*	*-4.0%*

Head and neck cancer	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of FGFR1 amplification (+) in head and neck cancer	45,221	45,673	46,130	46,591	47,057	47,527	48,003	48,483	48,968	49,457	49,952	50,451	50,956	51,465
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.1%	0.3%	0.4%	0.6%	0.8%	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
# of patients treated with FP-1039 for head and neck cancer	-	34	115	204	294	356	420	485	490	495	500	505	510	515
Annual treatment cost for FP-1039	100,000	99,000	98,010	97,030	96,060	95,099	94,148	93,207	46,603	37,283	35,418	33,648	31,965	30,367
% annual price increase		*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in head and neck cancer ($ in '000)	-	3,391	11,303	19,778	28,252	33,899	39,544	45,189	22,821	18,439	17,692	16,976	16,288	15,628
y/y growth %			*233.3%*	*75.0%*	*42.8%*	*20.0%*	*16.7%*	*14.3%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.1%*	*-4.1%*

Breast cancer	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of FGFR1 amplification (+) in breast cancer	32,270	32,593	32,919	33,248	33,581	33,916	34,255	34,598	34,944	35,293	35,646	36,003	36,363	36,727
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FP-1039	0.0%	0.1%	0.3%	0.4%	0.6%	0.8%	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
# of patients treated with FP-1039 for breast cancer	-	24	82	145	210	254	300	346	349	353	356	360	364	367
Annual treatment cost for FP-1039	100,000	99,000	98,010	97,030	96,060	95,099	94,148	93,207	46,603	37,283	35,418	33,648	31,965	30,367
% annual price increase		*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-50%*	*-20%*	*-5%*	*-5%*	*-5%*	*-5%*
Sales in breast cancer ($ in '000)	-	2,420	8,066	14,114	20,161	24,191	28,219	32,248	16,285	13,158	12,625	12,114	11,623	11,153
y/y growth %			*233.3%*	*75.0%*	*42.8%*	*20.0%*	*16.7%*	*14.3%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.1%*	*-4.1%*

Total FP-1039 Asia Sales by future partner ($ in '000)	**-**	**$17,911**	**$59,699**	**$104,462**	**$149,217**	**$179,042**	**$208,861**	**$238,675**	**$120,531**	**$97,389**	**$93,445**	**$89,660**	**$86,029**	**$82,545**
y/y growth %			*233.3%*	*75.0%*	*42.8%*	*20.0%*	*16.7%*	*14.3%*	*-49.5%*	*-19.2%*	*-4.1%*	*-4.1%*	*-4.1%*	*-4.0%*
Royalty to FPRX on FP-1039 Asia sales (assumed royalty rate of ~ 20%) ($ in '000)	**-**	**$3,582**	**$11,940**	**$20,892**	**$29,843**	**$35,808**	**$41,772**	**$47,735**	**$24,106**	**$19,478**	**$18,689**	**$17,932**	**$17,206**	**$16,509**

Source: Company reports and Jefferies

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Exhibit 20: Sales Projections for FPA008 in Rheumatoid Arthritis ($ in '000)

U.S. Sales	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of RA patients in U.S. (in 000s)	2,037	2,057	2,078	2,099	2,120	2,141	2,162	2,184	2,206	2,228	2,250	2,273	2,295	2,318
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
# of U.S. RA patients on therapy	1,930	1,949	1,969	1,988	2,008	2,028	2,049	2,069	2,090	2,111	2,132	2,153	2,175	2,196
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
1st-line anti-TNF treated patients	1,126	1,127	1,128	1,129	1,130	1,131	1,132	1,133	1,134	1,135	1,136	1,137	1,138	1,139
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
% of patients failing 1st-line anti-TNF treatment	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*
# of patients treated with 2nd-line biologic or JAKi	282	282	282	282	283	283	283	283	284	284	284	284	285	285
Penetration of FPA008 in 2nd-line biologic/JAKi candidates	0.0%	0.7%	1.6%	2.6%	3.7%	4.6%	5.5%	6.4%	7.2%	8.0%	8.5%	8.7%	8.7%	8.7%
# of patients treated with FPA008	-	1,972	4,512	7,339	10,453	13,008	15,567	18,130	20,415	22,703	24,143	24,733	24,755	24,777
Annual treatment cost for FPA008	25,250	25,503	25,758	26,015	26,275	26,538	26,803	27,071	27,342	27,616	27,892	28,171	28,452	14,226
% annual price increase	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*-50%*
U.S. sales in RA ($ in '000)	**-**	**50,300**	**116,226**	**190,927**	**274,666**	**345,200**	**417,239**	**490,807**	**558,176**	**626,956**	**673,401**	**696,757**	**704,349**	**352,487**
y/y growth %			*131.1%*	*64.3%*	*43.9%*	*25.7%*	*20.9%*	*17.6%*	*13.7%*	*12.3%*	*7.4%*	*3.5%*	*1.1%*	*-50.0%*

EU Sales	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of RA patients in EU (in 000s)	2,037	2,057	2,078	2,099	2,120	2,141	2,162	2,184	2,206	2,228	2,250	2,273	2,295	2,318
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
# of EU RA patients on therapy	1,930	1,949	1,969	1,988	2,008	2,028	2,049	2,069	2,090	2,111	2,132	2,153	2,175	2,196
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
1st-line anti-TNF treated patients	1,126	1,127	1,128	1,129	1,130	1,131	1,132	1,133	1,134	1,135	1,136	1,137	1,138	1,139
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
% of patients failing 1st-line anti-TNF treatment	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*
# of patients treated with 2nd-line biologic or JAKi	282	282	282	282	283	283	283	283	284	284	284	284	285	285
Penetration of FPA008 in 2nd-line biologic/JAKi candidates	0.0%	0.0%	0.8%	1.3%	1.9%	2.3%	2.8%	3.2%	3.6%	4.0%	4.3%	4.4%	4.4%	4.4%
# of patients treated with FPA008	-	-	2,256	3,670	5,227	6,504	7,783	9,065	10,207	11,352	12,072	12,367	12,378	12,389
Annual treatment cost for FPA008	19,800	19,602	19,406	19,212	19,020	18,830	18,641	18,455	18,270	18,088	17,907	17,728	17,905	8,952
% annual price increase	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*1%*	*-50%*
EU sales in RA ($ in '000)	**-**	**-**	**43,783**	**70,499**	**99,411**	**122,466**	**145,091**	**167,294**	**186,490**	**205,322**	**216,165**	**219,234**	**221,623**	**110,910**
y/y growth %				*61.0%*	*41.0%*	*23.2%*	*18.5%*	*15.3%*	*11.5%*	*10.1%*	*5.3%*	*1.4%*	*1.1%*	*-50.0%*

Total FPA008 sales in RA by a partner ($ in '000)	**-**	**$50,300**	**$160,009**	**$261,426**	**$374,077**	**$467,666**	**$562,330**	**$658,101**	**$744,667**	**$832,278**	**$889,566**	**$915,990**	**$925,972**	**$463,397**
Royalty Revenue to FPRX on FPA008 sales (~20%) ($ in '000)	**-**	**$10,060**	**$32,002**	**$52,285**	**$74,815**	**$93,533**	**$112,466**	**$131,620**	**$148,933**	**$166,456**	**$177,913**	**$183,198**	**$185,194**	**$92,679**
y/y growth %			*218.1%*	*63.4%*	*43.1%*	*25.0%*	*20.2%*	*17.0%*	*13.2%*	*11.8%*	*6.9%*	*3.0%*	*1.1%*	*-50.0%*

Source: Company reports and Jefferies

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Exhibit 21: Sales Projections for FPA144 in FGFR2-amplified Gastric Cancer ($ in '000)

U.S. Sales	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of gastric cancer in U.S.	78,022	78,802	79,590	80,386	81,190	82,002	82,822	83,650	84,486	85,331	86,185	87,046	87,917	88,796
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
% of gastric cancer patients with FGFR2 amplification	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Prevalence of FGFR2b amplification (+) gastric cancer patients	4,681	4,728	4,775	4,823	4,871	4,920	4,969	5,019	5,069	5,120	5,171	5,223	5,275	5,328
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
Penetration of FPA144	0.0%	0.5%	3.0%	7.0%	12.0%	18.0%	24.0%	30.0%	33.0%	34.0%	35.0%	35.0%	35.0%	35.0%
# of patients treated with FPA144 for gastric cancer	-	24	143	338	585	886	1,193	1,506	1,673	1,741	1,810	1,828	1,846	1,865
Annual treatment cost for FPA144	150,000	151,500	153,015	154,545	156,091	157,652	159,228	160,820	162,429	164,053	165,693	82,847	66,277	62,963
% annual price increase	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*-50%*	*-20%*	*-5%*
U.S. sales in gastric cancer ($ in '000)	**-**	**3,582**	**21,921**	**52,178**	**91,245**	**139,619**	**189,900**	**242,147**	**271,715**	**285,576**	**299,884**	**151,442**	**122,365**	**117,409**
y/y growth %			*512.1%*	*138.0%*	*74.9%*	*53.0%*	*36.0%*	*27.5%*	*12.2%*	*5.1%*	*5.0%*	*-49.5%*	*-19.2%*	*-4.1%*

RoW Sales	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Prevalence of gastric cancer in RoW	1,098,939	1,109,928	1,121,027	1,132,238	1,143,560	1,154,996	1,166,546	1,178,211	1,189,993	1,201,893	1,213,912	1,226,051	1,238,312	1,250,695
y/y growth %	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
% of gastric cancer patients with FGFR2 amplification	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Prevalence of FGFR2b amplification (+) gastric cancer patients	32,968	33,298	33,631	33,967	34,307	34,650	34,996	35,346	35,700	36,057	36,417	36,782	37,149	37,521
Penetration of FPA144	0.0%	0.3%	1.5%	3.5%	6.0%	9.0%	12.0%	15.0%	16.5%	17.0%	17.5%	17.5%	17.5%	17.5%
# of patients treated with FPA144 for FGFR2 amp + gastric cancer	0	83	504	1,189	2,058	3,118	4,200	5,302	5,890	6,130	6,373	6,437	6,501	6,566
Annual treatment cost for FPA144	100,000	99,000	98,010	97,030	96,060	95,099	94,148	93,207	92,274	91,352	90,438	45,219	36,175	34,367
% annual price increase	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-50%*	*-20%*	*-5%*
RoW sales in gastric cancer ($ in '000)	**-**	**8,241**	**49,442**	**115,354**	**197,730**	**296,565**	**395,381**	**494,176**	**543,540**	**559,955**	**576,366**	**291,065**	**235,180**	**225,656**
y/y growth %			*499.9%*	*133.3%*	*71.4%*	*50.0%*	*33.3%*	*25.0%*	*10.0%*	*3.0%*	*2.9%*	*-49.5%*	*-19.2%*	*-4.0%*

Total FPA144 sales in gastric cancer by partner ($ in '000)	**-**	**$11,823**	**$71,364**	**$167,532**	**$288,975**	**$436,184**	**$585,281**	**$736,323**	**$815,255**	**$845,531**	**$876,250**	**$442,506**	**$357,545**	**$343,065**
Royalty revenue on FPA144 sales to FPRX (assume ~18%, net of royalty to Galaxy) ($ in '000)	**-**	**$2,128**	**$12,845**	**$30,156**	**$52,016**	**$78,513**	**$105,351**	**$132,538**	**$146,746**	**$152,196**	**$157,725**	**$79,651**	**$64,358**	**$61,752**
y/y growth %			*503.6%*	*134.8%*	*72.5%*	*50.9%*	*34.2%*	*25.8%*	*10.7%*	*3.7%*	*3.6%*	*-49.5%*	*-19.2%*	*-4.1%*
Royalty to Galaxy on FPA144 sales (assume ~8-12%)	**-**	**$946**	**$5,709**	**$13,403**	**$26,008**	**$39,257**	**$58,528**	**$73,632**	**$89,678**	**$93,008**	**$96,388**	**$48,676**	**$39,330**	**$37,737**

Source: Company reports and Jefferies

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Exhibit 22: Estimated NPV Analysis for Five Prime

Royalty Revenues	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E-2038E
Royalty on FP-1039 sales in squamous NSCLC	-	-	-	-	-	-	631	7,167	22,364	43,508	74,888	105,405	132,530	143,389	63,500	317,502
Royalty on FP-1039 sales in head and neck cancer	-	-	-	-	-	-	-	1,213	6,052	13,400	24,195	38,081	49,722	60,484	26,795	133,974
Royalty on FP-1039 sales in breast cancer	-	-	-	-	-	-	-	1,277	7,176	17,024	31,965	52,911	70,167	86,605	37,279	186,394
Total royalty on FP-1039 sales							***631***	***9,657***	***35,592***	***73,932***	***131,047***	***196,398***	***252,419***	***290,478***	***127,574***	***637,870***
Royalty on FPA008 sales RA	-	-	-	-	-	-	-	10,060	32,002	52,285	74,815	93,533	112,466	131,620	148,933	744,667
Royalty on FPA144 sales in gastric cancer	-	-	-	-	-	-	-	2,128	12,845	30,156	52,016	78,513	105,351	132,538	146,746	733,729
Total Royalty Revenue to FPRX ($ in '000)	**-**	**-**	**-**	**-**	**-**	**-**	**631**	**21,845**	**80,439**	**156,373**	**257,878**	**368,444**	**470,235**	**554,636**	**423,253**	**2,116,266**

FP-1039 in squamous NSCLC	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E-2038E
Royalty/milestone revenue from GSK/partner ($ in 000)	-	**3,000**	**9,000**	**15,000**	-	**30,000**	**60,378**	**4,300**	**13,418**	**26,105**	**44,933**	**63,243**	**79,518**	**86,033**	**38,100**	**190,501**
NOPAT	(7,754)	(5,917)	(1,243)	5,375	(9,709)	21,723	52,641	(1,883)	8,344	19,326	33,846	46,094	55,016	63,025	27,060	135,301
Present value (PV)	(7,754)	(5,917)	(1,110)	4,285	(6,911)	13,805	29,870	(954)	3,774	7,806	12,205	14,841	15,816	16,177	6,201	17,594

Probability	60%
Discount rate	12.0%
NPV ($ in '000)	119,730
# of shares outstanding ('000)	16,754
PV/share for FP-1039 in squamous NSCLC	**$7.15**

FP-1039 in head and neck cancer	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E-2038E
Royalty/milestone revenue from GSK/partner ($ in 000)	-	-	-	-	-	-	-	**607**	**3,026**	**6,700**	**12,097**	**19,041**	**24,861**	**30,242**	**13,397**	**66,987**
NOPAT	(2,682)	(2,214)	(2,516)	(2,839)	(3,180)	(3,720)	(3,088)	(2,391)	(329)	3,226	7,663	12,512	15,831	21,182	8,533	42,665
Present value (PV)	(2,682)	(2,214)	(2,246)	(2,263)	(2,263)	(2,364)	(1,752)	(1,211)	(149)	1,303	2,763	4,028	4,551	5,437	1,956	5,548

Probability	50%
Discount rate	12.0%
NPV ($ in '000)	8,441
# of shares outstanding ('000)	16,754
PV/share for FP-1039 in head and neck cancer	**$0.50**

FP-1039 in breast cancer	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E-2038E
Royalty/milestone revenue from GSK/partner ($ in 000)	-	-	-	-	-	-	-	**638**	**3,588**	**8,512**	**15,982**	**26,456**	**35,083**	**43,302**	**18,639**	**93,197**
NOPAT	(2,682)	(2,214)	(2,516)	(2,839)	(3,180)	(3,720)	(3,088)	(2,359)	205	4,857	10,965	18,444	23,498	30,977	12,465	62,323
Present value (PV)	(2,682)	(2,214)	(2,246)	(2,263)	(2,263)	(2,364)	(1,752)	(1,195)	93	1,962	3,954	5,938	6,755	7,951	2,857	8,104

Probability	50%
Discount rate	12.0%
NPV ($ in '000)	$20,633
# of shares outstanding ('000)	16,754
PV/share for FP-1039 in breast cancer	**$1.23**

FPA008 in rheumatoid arthritis (RA)	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E-2038E
Royalty revenue from future partner ($ in 000)	-	-	-		-		-	**5,030**	**16,001**	**26,143**	**37,408**	**46,767**	**56,233**	**65,810**	**74,467**	**372,333**
NOPAT	(4,372)	(11,203)	(10,633)	(10,575)	(10,614)	(8,642)	(7,737)	(1,727)	9,771	18,960	27,025	32,474	37,108	44,797	51,746	258,729
Present value (PV)	(4,372)	(11,203)	(9,494)	(8,430)	(7,555)	(5,492)	(4,390)	(875)	4,420	7,658	9,746	10,456	10,668	11,498	11,859	33,645

Probability	50%
Discount rate	12.0%
NPV ($ in '000)	$48,136
# of shares outstanding ('000)	16,754
PV/share for FPA008 in RA	**$2.87**

FPA144 in FGFR2-amplified gastric cancer	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E-2038E
Royalty revenue from future partner ($ in 000)	-	-	-	-		-		**1,064**	**6,423**	**15,078**	**26,008**	**39,257**	**52,675**	**66,269**	**73,373**	**366,865**
NOPAT	(3,527)	(5,370)	(11,080)	(12,104)	(13,495)	(11,868)	(9,169)	(4,653)	636	8,085	17,866	27,612	36,214	44,702	50,529	252,647
Present value (PV)	(3,527)	(5,370)	(9,893)	(9,650)	(9,605)	(7,542)	(5,203)	(2,358)	288	3,265	6,443	8,890	10,411	11,474	11,580	32,854

Probability	50%
Discount rate	12.0%
NPV ($ in '000)	$32,057
# of shares outstanding ('000)	16,754
PV/share for FPA144 in gastric cancer	**$1.91**

NPV for FP-1039 for solid tumors	**$8.88**
NPV for FPA008 for RA	**$2.87**
NPV for FPA144 for gastric cancer	**$1.91**
Technology value	**$5.97**
Total NPV for FPRX	**$19.64**

Source: Company reports and Jefferies

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Exhibit 23: Five Prime's Income Statement

($ in thousands except per share)

	2012	1Q13	2Q13	3Q13E	4Q13E	2013E	1Q14E	2Q14E	3Q14E	4Q14E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Royalty Revenues																						
FP-1039 for solid tumors																631	9,657	35,592	73,932	131,047	196,398	252,419
% growth y/y																		*268.6%*	*107.7%*	*77.3%*	*49.9%*	*28.5%*
FPA008 for RA																-	10,060	32,002	52,285	74,815	93,533	112,466
% growth y/y																			*63.4%*	*43.1%*	*25.0%*	*20.2%*
FPA144 for gastric cancer																-	2,128	12,845	30,156	52,016	78,513	105,351
% growth y/y																			*134.8%*	*72.5%*	*50.9%*	*34.2%*
Collaboration revenues	9,983	2,975	3,549	2,500	2,500	11,524	3,025	3,025	3,025	3,025	12,100	20,800	30,000	10,000	60,000	105,000	20,000	20,000	20,000	20,000	20,000	20,000
Others																						
Total Revenues	**9,983**	**2,975**	**3,549**	**2,500**	**2,500**	**11,524**	**3,025**	**3,025**	**3,025**	**3,025**	**12,100**	**20,800**	**30,000**	**10,000**	**60,000**	**105,631**	**41,845**	**100,439**	**176,373**	**277,878**	**388,444**	**490,235**
% growth y/y						*15.4%*					*5.0%*	*71.9%*	*44.2%*	*-66.7%*	*500.0%*	*76.1%*	*-60.4%*	*140.0%*	*75.6%*	*57.6%*	*39.8%*	*26.2%*
Expenses																						
Cost of Goods Sold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Gross margin																						
R&D	28,778	7,930	8,585	8,600	8,699	33,814	9,200	9,500	9,800	10,386	38,886	44,719	50,980	57,607	64,520	71,617	79,495	88,240	97,946	108,720	119,592	130,356
% growth y/y	*-15.5%*					*17.5%*					*15.0%*	*15.0%*	*14.0%*	*13.0%*	*12.0%*	*11.0%*	*11.0%*	*11.0%*	*11.0%*	*11.0%*	*10.0%*	*9.0%*
SG&A	9,009	2,392	2,386	2,500	2,632	9,910	2,700	2,800	2,900	2,996	11,396	12,992	14,681	16,443	18,251	20,076	22,084	24,292	26,722	29,394	32,333	35,566
% growth y/y	*-19.7%*					*10.0%*					*15.0%*	*14.0%*	*13.0%*	*12.0%*	*11.0%*	*10.0%*	*10.0%*	*10.0%*	*10.0%*	*10.0%*	*10.0%*	*10.0%*
Total Expenses	37,787	10,322	10,971	11,100	11,331	43,724	11,900	12,300	12,700	13,383	50,283	57,711	65,661	74,050	82,771	91,694	101,579	112,532	124,668	138,114	151,925	165,922
Income (loss) from Operations (EBIT)	**(27,804)**	(7,347)	(7,422)	(8,600)	(8,831)	**(32,200)**	(8,875)	(9,275)	(9,675)	(10,358)	**(38,183)**	**(36,911)**	**(35,661)**	**(64,050)**	**(22,771)**	**13,937**	**(59,734)**	**(12,093)**	**51,706**	**139,764**	**236,519**	**324,313**
% growth y/y																						
Interest income	88	15	13	15	37	80	25	25	25	25	100	100	100	100	100	100	100	100	200	1,000	2,000	2,000
Other income (expense), net	121	285	135			420																
Earnings (Loss) Before Taxes	(27,595)	(7,047)	(7,274)	(8,585)	(8,794)	(31,700)	(8,850)	(9,250)	(9,650)	(10,333)	(38,083)	(36,811)	(35,561)	(63,950)	(22,671)	14,037	(59,634)	(11,993)	51,906	140,764	238,519	326,313
Income taxes (benefits)															-	-	-	-	5,191	21,115	47,704	81,578
Tax rate															0.0%	0.0%	0.0%	0.0%	10.0%	15.0%	20.0%	25.0%
Net Income (loss)	**(27,595)**	**(7,047)**	**(7,274)**	**(8,585)**	**(8,794)**	**(31,700)**	**(8,850)**	**(9,250)**	**(9,650)**	**(10,333)**	**(38,083)**	**(36,811)**	**(35,561)**	**(63,950)**	**(22,671)**	**14,037**	**(59,634)**	**(11,993)**	**46,715**	**119,650**	**190,815**	**244,735**
GAAP EPS (LPS) - Basic	**(23.05)**	**(5.73)**	**(5.87)**	**(0.71)**	**(0.53)**	**(4.05)**	**(0.53)**	**(0.55)**	**(0.58)**	**(0.62)**	**(2.28)**	**(1.76)**	**(1.68)**	**(2.43)**	**(0.85)**	0.52	**(1.98)**	**(0.39)**	1.52	3.85	6.08	7.73
GAAP EPS (LPS) - Diluted	(23.05)	(5.73)	(5.87)	(0.71)	(0.53)	(4.05)	(0.53)	(0.55)	(0.58)	(0.62)	(2.28)	(1.76)	(1.68)	(2.43)	(0.85)	**0.47**	(1.98)	(0.36)	**1.38**	**3.51**	**5.55**	**7.06**
Pro Forma EPS (LPS)																						
% growth y/y																						
Shares - Basic	1,197	1,229	1,240	12,175	16,687	7,833	16,704	16,720	16,737	16,754	16,729	20,921	21,131	26,342	26,605	26,871	30,140	30,441	30,746	31,053	31,364	31,677
Shares - Diluted	1,197	1,229	1,240	12,175	16,687	7,833	16,704	16,720	16,737	16,754	16,729	20,921	21,131	26,342	26,605	29,871	30,140	33,441	33,746	34,053	34,364	34,677
Cash, cash equivalents & investments	38,015	37,509	28,196	87,011	78,217	78,217	69,367	60,117	50,467	40,134	40,134	60,323	24,762	54,813	32,141	46,178	56,544	44,551	91,266	210,916	401,731	646,466

Source: Company reports and Jefferies

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Exhibit 24: Five Prime Balance Sheet and Cash Flow Statement

Balance Sheet
($ in thousands, except per share)

	2012	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Assets														
Current assets														
Cash and cash equivalents	11,391	49,267	23,253	25,494	21,959	28,998	28,265	34,175	31,335	31,039	34,423	35,728	43,623	69,122
Marketable securities	26,624	28,950	16,881	34,829	2,803	25,815	3,877	12,003	25,209	13,512	56,843	175,188	358,108	577,343
Receivable from collaborative partner	397	417	438	460	483	507	532	559	587	616	647	679	713	749
Prepaid and other current assets	689	1,022	1,073	1,127	1,183	1,242	1,304	1,370	1,438	1,510	1,585	1,665	1,748	1,835
Total current assets	**39,101**	**79,656**	**41,645**	**61,910**	**26,428**	**56,562**	**33,978**	**48,106**	**58,568**	**46,677**	**93,498**	**213,259**	**404,192**	**649,050**
Property and equipment, net	4,631	4,863	5,106	5,361	5,629	5,910	6,206	6,516	6,842	7,184	7,543	7,921	8,317	8,732
Other long-term assets	359	1,696	1,781	1,870	1,963	2,061	2,165	2,273	2,386	2,506	2,631	2,763	2,901	3,046
Total assets	**44,091**	**86,214**	**48,532**	**69,140**	**34,020**	**64,534**	**42,348**	**56,895**	**67,797**	**56,367**	**103,673**	**223,943**	**415,409**	**660,828**
Liabilities, Redeemable Preferred Stock and Stockholders' Equity														
Current liabilities														
Accounts payable	2,470	2,717	2,989	3,288	3,616	3,978	4,376	4,813	5,295	5,824	6,407	7,047	7,752	8,527
Accrued personnel-related expenses	2,250	2,475	2,723	2,995	3,294	3,624	3,986	4,385	4,823	5,305	5,836	6,420	7,061	7,768
Other accrued liabilities	303	318	334	351	368	387	406	426	448	470	494	518	544	571
Preferred stock warrant liability	563	591	621	652	684	719	754	792	832	873	917	963	1,011	1,062
Deferred revenue, current portion	7,498	8,248	9,073	9,980	10,978	12,076	13,283	14,611	16,073	17,680	19,448	21,393	23,532	25,885
Deferred rent, current portion														
Total current liabilities	**13,084**	**14,349**	**15,739**	**17,265**	**18,941**	**20,782**	**22,805**	**25,028**	**27,470**	**30,153**	**33,101**	**36,341**	**39,901**	**43,813**
Deferred revenue, long-term portion	7,258	7,621	8,002	8,402	8,822	9,263	9,726	10,213	10,723	11,260	11,823	12,414	13,034	13,686
Deferred rent, long-term portion	2,448	2,570	2,699	2,834	2,976	3,124	3,281	3,445	3,617	3,798	3,988	4,187	4,396	4,616
Other long-term liabilities	897	942	989	1,038	1,090	1,145	1,202	1,262	1,325	1,392	1,461	1,534	1,611	1,691
Total Liabilities	**23,687**	**25,482**	**27,428**	**29,539**	**31,829**	**34,315**	**37,014**	**39,947**	**43,135**	**46,602**	**50,372**	**54,475**	**58,942**	**63,806**
Total stockholders' equity	**(115,878)**	**60,732**	**21,103**	**39,601**	**2,191**	**30,219**	**5,334**	**16,948**	**24,662**	**9,765**	**53,300**	**169,467**	**356,467**	**597,022**
Total Liabilities & Stockholders' Equity	**44,091**	**86,214**	**48,532**	**69,140**	**34,020**	**64,534**	**42,348**	**56,895**	**67,797**	**56,367**	**103,673**	**223,943**	**415,409**	**660,828**
Cash/Share	$30.93	$9.99	$2.40	$3.61	$1.48	$3.27	$1.92	$2.21	$2.68	$1.69	$3.43	$7.06	$13.33	$19.33
Book Value/Share	($96.81)	$3.64	$1.26	$1.89	$0.10	$1.15	$0.20	$0.57	$0.82	$0.29	$1.58	$4.98	$10.37	$17.22
Long-term debt-to-capitalization ratio	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Return on Equity	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.6%	70.6%	53.5%	41.0%

Cash Flow Statement
($ in thousands except per share)

	2012	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Operating Activities														
Net (loss) income	(27,595)	(31,700)	(38,183)	(36,911)	(35,661)	(64,050)	(22,771)	13,937	(59,734)	(12,093)	51,706	139,764	236,519	324,313
Depreciation & Amortization	1,643	1,692	1,743	1,795	1,849	1,905	1,962	2,021	2,081	2,144	2,208	2,274	2,343	2,413
(Gain) loss on disposal of property and equipment	(5)	(5)	(5)	(5)	(6)	(6)	(6)	(6)	(6)	(7)	(7)	(7)	(7)	(7)
Stock-based compensation expense	1,721	1,773	1,826	1,881	1,937	1,995	2,055	2,117	2,180	2,246	2,313	2,382	2,454	2,527
Amortization of premium on marketable securities	538	554	571	588	606	624	642	662	682	702	723	745	767	790
Revaluation of preferred stock warrant liability	(119)	(123)	(126)	(130)	(134)	(138)	(142)	(146)	(151)	(155)	(160)	(165)	(170)	(175)
Changes in operating assets and liabilities	5,420	(1,265)	(1,389)	(1,526)	(1,676)	(1,841)	(2,023)	(2,223)	(2,442)	(2,683)	(2,948)	(3,240)	(3,560)	(3,912)
Net cash from operations	**(18,397)**	**(29,074)**	**(35,564)**	**(34,309)**	**(33,085)**	**(61,512)**	**(20,283)**	**16,361**	**(57,390)**	**(9,846)**	**53,835**	**141,754**	**238,345**	**325,949**
Investing Activities														
Puchases of marketable securities	(45,419)		10,000	(20,000)	30,000	(25,000)	20,000	(10,000)	(15,000)	10,000	(50,000)	(140,000)	(230,000)	(300,000)
Maturities of marketable securities	64,636													
Purchases of property and equipment	(737)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)
Restricted cash	38	50	50	50	50	50	50	50	50	50	50	50	50	50
Proceeds received from lease incentives	-													
Proceeds from disposal of property and equipment	-													
Net cash from investments	**18,518**	**(450)**	**9,550**	**(20,450)**	**29,550**	**(25,450)**	**19,550**	**(10,450)**	**(15,450)**	**9,550**	**(50,450)**	**(140,450)**	**(230,450)**	**(300,450)**
Financing Activities														
Net proceeds from issuances of convertible preferred stock	6,819													
Proceeds from issuances of common stock	105	67,400		57,000		94,000			70,000					
Payments under capital lease obligation	(15)													
Net cash from financing	**6,909**	**67,400**	**-**	**57,000**	**-**	**94,000**	**-**	**-**	**70,000**	**-**	**-**	**-**	**-**	**-**
Net Change in Cash and Cash Equivalents	**7,030**	**37,876**	**(26,014)**	**2,241**	**(3,535)**	**7,038**	**(733)**	**5,911**	**(2,840)**	**(296)**	**3,385**	**1,304**	**7,895**	**25,499**
Cash and cash equivalents at beginning of period	4,361	11,391	49,267	23,253	25,494	21,959	28,998	28,265	34,175	31,335	31,039	34,423	35,728	43,623
Cash and cash equivalents at end of period	11,391	49,267	23,253	25,494	21,959	28,998	28,265	34,175	31,335	31,039	34,423	35,728	43,623	69,122

Source: Company reports and Jefferies

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Company Description

Five Prime Therapeutics, Inc. is an early clinical stage biotechnology company focused on discovering and developing new protein therapeutics in cancer and inflammatory diseases. Five Prime's product candidates include FP-1039/GSK3052230, a biologic (FGF ligand trap) for trapping and neutralizing cancer-promoting fibroblast growth factors (FGFs) involved in cancer cell proliferation and new blood vessel formation, which is partnered with GlaxoSmithKline; FPA008, an antibody that inhibits colony stimulating factor-1 receptor (CSF-1R); and FPA144, an antibody for inhibiting FGF receptor 2b (anti-FGFR2b mAb). In addition, Five Prime has early drug discovery partnerships with GlaxoSmithKline and UCB Pharma S.A. Founded in 2001 and IPOed in September 2013, Five Prime is headquartered in San Francisco, California.

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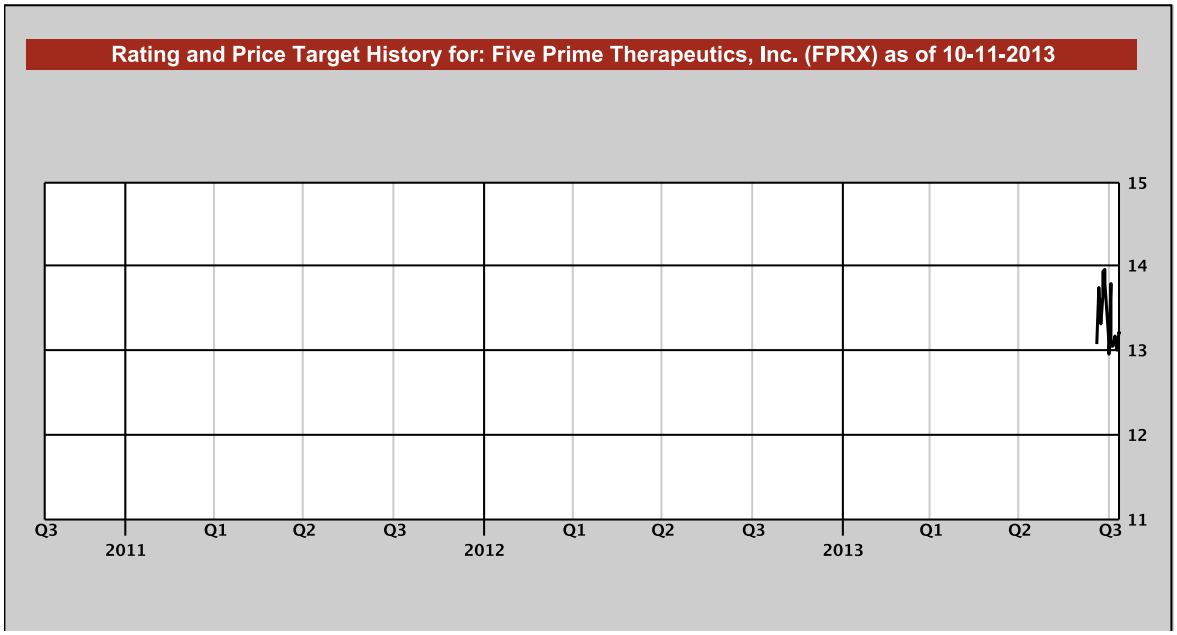
- AbbVie (ABBV: $45.65, BUY)
- AstraZeneca PLC (AZN LN: p3,176.50, UNDERPERFORM)
- Aveo Pharmaceuticals, Inc. (AVEO: $2.12, HOLD)
- Bristol-Myers Squibb (BMY: $47.68, HOLD)
- Daiichi Sankyo (4568 JP: ¥1,786, BUY)
- Eli Lilly & Co. (LLY: $48.88, UNDERPERFORM)
- GlaxoSmithKline Plc (GSK LN: p1,554.50, HOLD)
- Johnson & Johnson (JNJ: $89.45, HOLD)
- Merck & Co. (MRK: $47.29, HOLD)
- Pfizer, Inc. (PFE: $28.72, HOLD)
- Roche (ROG VX: CHF238.90, BUY)
- Takeda Pharmaceutical Co. (4502 JP: ¥4,700, HOLD)
- Verastem Inc. (VSTM: $10.61, BUY)



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Rating	Count	Percent	IB Serv./Past 12 Mos. Count	IB Serv./Past 12 Mos. Percent
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HOLD	767	43.68%	122	15.91%
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