

## Flexion Therapeutics, Inc. (FLXN) Initiation of Coverage

August 14, 2014

## **SUMMARY AND INVESTMENT THESIS**

We are initiating coverage of Flexion Therapeutics (FLXN) with a BUY rating and a \$25 price target. FLXN's lead product in development is FX006, a novel extended-release formulation of triamcinolone acetonide (TCA) for osteoarthritic (OA) pain that could take significant share of the market of three million US immediate-release (IR) TCA patients. FLXN launched a confirmatory dose-ranging phase II trial for FX006 in April, with a phase III trial expected to follow in 2H15. FLXN could be filing FX006 with the FDA by 4Q16. FLXN has an interesting pipeline, including FX007 for post-operative pain, which should have proof-of-concept bunionectomy data in IH15 and could start a phase II trial in 2H15. FLXN raised \$65MM with its February 12 IPO and has sufficient cash through 2015, at which point the second FX006 trial data should be available. With a fairly straightforward development process for FX006 we believe FLXN faces a lower development risk pathway and that FX006 ought to demonstrate superior pain relief to IR TCA. We are initiating coverage with a BUY rating and \$25 price target.

**FX006** could transform the treatment of osteoarthritis of the knee. Management believes FLXN's long-acting formulation of TCA presents a superior option to both IR TCA and to hyaluronic acid (HA) by lasting longer in the synovial fluid in the knee, leading to greater pain relief.

**OA** of the knee represents 3MM million US patients alone. There are approximately 3MM US patients annually who receive IR TCA injections. A 10% penetration of this established patient group could equate to ~\$250MM in annual sales in the US alone. The ROW opportunity could be 4-5x as large as the US opportunity.

**Significant pipeline catalysts over 2014-2015.** FLXN recently announced the results of a pharmacokinetic (PK) study of 10 mg and 40 mg FX006 vs. IR TCA demonstrating vastly greater concentrations of FX006 in the synovial fluid at 12 weeks. In IH15 we anticipate results from a confirmatory phase IIb doseranging trial, with a phase III trial starting in 2H15. FLXN's FX007 could have proof-of-concept data in a bunionectomy model by IH15.

Initiate with a BUY rating, \$25 price target. Our \$25 price target is based on a sum-of-the-parts analysis, with FX006 valued at \$20/share, FX007 at \$1/share, and cash (end 2015) and technology at \$4/share. We estimate another fund raise in 2015 of ~\$85MM.

# FLXN Rating: BUY Price Target: \$25.00

Market Data

 Price:
 \$13.37

 52-week high:
 \$20.85

 52-week low:
 \$11.06

 Shares out:
 15.62MM

 Shares short:
 190.38K

 Average volume (10-day):
 31,950

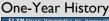
Valuation Metrics

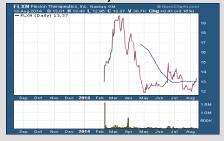
Market cap: \$208.89MM Enterprise value: \$135.07MM

Financial Highlights

Cash/equivalents: \$72.12MM Debt: \$2.0MM

REV (\$MM)	2013A	2014E	2015E
QI	0.0	0.0A	0.0
Q2	0.0	0.0A	0.0
Q3	0.0	0.0	0.0
Q4	0.0	0.0	0.0
FY	0.0	0.0	0.0
EPS (\$)	2013A	2014E	2015E
QI	(6.13)	(0.86)A	(0.67)
Q2	(6.13)	(0.38)A	(0.52)
Q3	(6.12)	(0.43)	(0.52)
Q4	(4.65)	(0.43)	(0.52)
FY	(23.02)	(1.90)	(2.20)





## Jim Molloy

Specialty Pharmaceuticals & Biotech 617-532-6421 jimm@ssrp.com

#### **SUMMARY AND INVESTMENT THESIS**

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#### **TOP REASONS TO OWN FLXN**

- 1. FX006 could transform the treatment of osteoarthritis of the knee. Management believes FLXN's long-acting formulation of TCA presents a superior option to both IR TCA and to hyaluronic acid (HA) by lasting longer in the synovial fluid in the knee, leading to greater pain relief.
- 2. OA of the knee represents 3MM US patients alone. There are approximately 3MM US patients annually who receive IR TCA injections. A 10% penetration of this established patient group could equate to ~\$250MM in annual sales in the US alone. The ROW opportunity could be 4-5x as large as the US opportunity.
- 3. Significant pipeline catalysts over 2014-2015. FLXN recently announced the results of a pharmacokinetic (PK) study of 10 mg and 40 mg FX006 vs. IR TCA demonstrating vastly greater concentrations of FX006 in the synovial fluid at 12 weeks. In 1H15 we anticipate results from a confirmatory phase IIb dose-ranging trial, with a phase III trial starting in 2H15. FLXN's FX007 could have proof-of-concept data in a bunionectomy model by 1H15.
- **4. Follow-on pipeline: FX007 in post-operative pain.** The post-operative pain market is estimated to be ~\$6B in the US with ~300MM IV units dosed per year. With the multi-modal analgesia as a standard of care and 75% of patients reporting adverse events from their pain medications, we believe FX007 should target a significant market. FX005 in end-stage osteoarthritis pain is an interesting longer-term compound, but we believe FLXN will focus its efforts on nearer-term prospects and will likely effectively "shelve" this compound for now.

Figure 1. Upcoming Potential Catalysts

Event	Expected Timing
LT Safety/repeat dose study FX006	2H14
FDA pre-IND meeting for FX007	2H14
Patent grant for FX006	4Q14/1Q15
Confirmatory p2 dose ranging FX006 study top-line	1H15

Source: SSRP Estimates

#### **VALUATION**

Figure 2. Sum-of-the-Parts Analysis

Sum-of-the-parts value: Flexion						
Segment	Valuation	Per share				
	(000's)	value				
FX006 value	\$405,820	\$20				
FX007	\$18,593	\$1				
Cash (end '15) & tech value	\$98,457	\$4				
SUM	\$522,871	\$25				
Shares out '15E (000)	_	20,559				

Source: SSRP Estimates

#### **COMPANY DESCRIPTION**

FLXN targets anti-inflammatory and analgesic therapies for musculoskeletal conditions, including OA pain and post-operative pain. FLXN's lead product is FX006 a sustained-release, intra-articular (IA) injection of TCA for patients with moderate to severe OA pain. FX006 provides long-lasting, local analgesia while avoiding systemic side effects. In a completed phase IIb dose-ranging clinical trial, FX006 has demonstrated clinically meaningful and significantly better pain relief compared to the IR TCA injection, which is the current standard of care. FLXN initiated a confirmatory phase IIb trial in April to further identify the best dose of FX006 that demonstrates superior pain relief to placebo for bringing into phase III trials in 2H15. FLXN is also conducting a synovial fluid PK trial to measure the duration that FX006 remains in the knee joint, which will help define the dosing regimen for a planned repeat dose safety clinical trial planned for 2H14 start.

FLXN's other product candidates are FX007 for post-operative pain and FX005 for treating end-stage OA patients. FX007 is a locally administered TrkA receptor antagonist that is designed to provide persistent relief of post-operative pain, including in patients who have undergone total joint arthroplasty (TJA, or knee replacement surgery). FLXN plans to initiate a phase lla proof-of-concept bunionectomy trial for FX007 in 2H14 (data expected 4Q14/1Q15). TrkA is the receptor for nerve growth factor (NGF), a small peptide that is released following tissue injury. NGF binds to TrkA on the surface of pain-sensing neurons and renders these cells more responsive to external stimuli. FLXN feels that systemic blockade of NGF should demonstrate analgesia in post-operative pain.

#### **FLEXION OSTEOARTHRITIS PLATFORM**

FLXN uses PLGA microspheres to incorporate pharmaceuticals into sustained release (SR) products for both FX006 (OA pain) and FX005 (end-stage OA pain). PLGA is poly-lactic-co-glycolic acid that is used in a variety of FDA approved therapeutic devices due to its biodegradability and biocompatibility. PLGA is metabolized to carbon dioxide and water as it releases drug in the IA space, and the physical properties of the polymer-drug matrix can be varied to achieve specified drug loads and release rates. Key to the success of FLXN's IA therapies is the ability to maintain therapeutic concentrations of drug in the joint while minimizing systemic exposure. The phase IIa trial of FX006 provides evidence that therapeutic concentrations of TCA are maintained locally (in the joint) for at least six weeks following a single injection, with low concentrations of TCA entering into systemic circulation.

#### FX006: Sustained-Release Steroid for Moderate to Severe OA Pain

FX006 is a SR injection of the steroid TCA, for moderate to severe OA pain. FX006 combines standard-of-care IR TCA with PLGA to create sustained-release TCA. In two clinical trials to date, a total of 252 patients have been exposed to either IR TCA or FX006 (196 FX006, 56 IR TCA). In a completed phase IIb dose-ranging clinical trial of patients with knee OA, 40 mg FX006 demonstrated clinically meaningful and significant improvements in pain relief and functional status relative to 40 mg IR TCA. Data from the 12-week dose-ranging trial show that 40 mg FX006 has a well-tolerated systemic and local safety profile to 40 mg IR TCA.

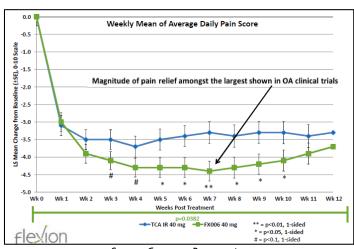


Figure 3. 40 mg FX006 vs. 40 mg TCA IR

Source: Company Presentation

FLXN's clinical data suggests that peak steroid concentrations in the joint with FX006 are orders of magnitude lower than those produced by IR TCA. A PK study in patients has demonstrated that FX006 avoids the marked suppression of the hypothalamic-pituitary-adrenal (HPA) axis, which determines the body's ability to make its own naturally occurring steroids, that occurs with commercially available steroid suspensions. The 40 mg IR TCA also produced maximal plasma concentrations (peak plasma concentrations measured over the given sampling period) that were 30x higher than 40 mg of FX006. Preclinical data demonstrate not only that FX006 is well tolerated, but in an inflammatory arthritis rat model it has the potential to prevent joint damage and do so more effectively than IR steroids. FLXN is conducting a synovial fluid PK trial to measure the duration of exposure to TCA from FX006 in the joint. The confirmatory phase IIb clinical trial of FX006 started in April is a planned repeat-dose safety clinical trial of FX006 is expected to begin in 2H14.

## FX006: Development Program

In June 2013 FLXN completed its phase IIb dose-ranging clinical trial in 228 patients with knee OA, assessing the safety, tolerability, and efficacy of FX006. The clinical trial was conducted at a total of 22 sites in Australia, Canada, and the US, with the objective of the study to identify a safe and well-tolerated dose of FX006 that demonstrates superiority to IR TCA and to provide an assessment of the magnitude and duration of pain relief.

The 228 patients were randomized and treated with a single IA injection of 10 mg, 40 mg, or 60 mg of FX006 or 40 mg of IR TCA (current standard of care). Each patient was evaluated for a total of 12 weeks. The primary outcome measure was the weekly mean of the average daily pain intensity score as assessed using a 10-point numerical rating scale. The primary efficacy endpoint was the change from baseline to each of weeks eight, 10, and 12. Secondary endpoints included change from baseline in the primary outcome measure for each week not addressed in the primary endpoint; time to onset of analgesia; responder status, pain, stiffness, and function measured using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), patient global impression of change (PGIC), clinical global impression of change (CGIC), and rescue medication consumption.

Phase 2b: FX006 Dose-ranging study 10mg, 40mg, 60mg vs. IR TCA Dose-ranging safety & tolerability & efficacy of 3 doses of FX006 vs. IR TCA Aim Design 12 week trial to determine magnitude & duration of pain relief; Mean baseline pain scores between 6.4 - 6.6 Single intra-articular injection of 10mg, 40mg, 60mg of FX006 or 40mg IR TCA Dosing **Endpoints** 1': change in weekly mean average daily pain intensity score on 10 pt scale from baseline to weeks 8, 10 & 12 2': time to onset of analgesia, responder status, pain, stiffnes & function on WOMAC scale; Patient Global Impression of Change (PGIC), Clinical Global Impression of Change (CGIC) & rescue meds consumption **Patients** Safety comparable to the same dose of IR TCA; well tolerated, systemic exposure < IR TCA Results - 6/26/13 1': 40mg dose showed stat sig. improvement from weeks 5 to 10 (p<0.05); Stat sig improvement across weeks 1 to 12 (p=0.0382); 10mg dose showed improvement, but no stat sig difference; 60mg dose showed no improvement; 2': 40mg pain stiffness, function, PGIC, CGIC & responder status (p<0.05); 10mg dose showed improvement, but no stat sig difference; 60mg dose showed no improvement.

Figure 4. Phase IIb Trial Design

Source: Company Reports

#### **FX007: For Post-Operative Pain**

FX007 is a small molecule TrkA receptor antagonist that is in development for the persistent relief of post-operative pain. TrkA is the receptor for NGF, a small peptide that is released following tissue injury. NGF binds to TrkA on the surface of pain-sensing neurons and renders these cells more responsive to external stimuli. In recent clinical trials of Pfizer's (PFE-\$28.21-NR) monoclonal antibody, tanezumab, systemic blockade of NGF demonstrated marked analgesia in a variety of painful conditions. Additionally, human genetic studies demonstrated that patients with a mutation in the TrkA gene have congenital insensitivity to pain. These data indicate that interruption of the NGF-TrkA pathway produces a profound analgesic effect, and in preclinical pharmacology experiments FX007 has demonstrated both high affinity for the TrkA receptor and analgesic effects in OA and post-operative pain. However, systemic and persistent blockade of NGF has been associated with rapidly progressive OA requiring TJA. FX007 is being developed for acute, local administration, which has the potential to avoid side effects associated with chronic systemic use.

According to the International Association for the Study of Pain, more than 46MM inpatient and 53MM outpatient surgeries are performed annually in the US. Moderate to severe pain in a hospital or other medical setting is most often treated with injectable analgesics. The US IV/injectable analgesic therapy market primarily consists of mu opioid agonists, such as morphine, hydromorphone, and fentanyl, and certain non-opioid analgesics, such as Toradol (and related generic IV ketorolac products), Caldolor (IV ibuprofen), and Ofirmev (IV acetaminophen). According to GBI Research, the postoperative pain relief market,

with sales of \$5.9B in 2010, accounted for approximately 20% of the total pain management market. Despite the size of this market, however, post-operative pain management remains a challenge for healthcare providers, with studies reporting that up to 80% of patients experience inadequate pain relief after surgery.

FLXN has conducted initial preclinical studies for FX007 using models of OA and post-operative pain and demonstrated efficacy in both; the company plans to start a proof-of-concept trial for FX007 in 2H14.

## FX005: For End-Stage OA Pain

FX005 is being studied for end-stage OA pain, particularly those patients awaiting TJA as an alternative to opioids. FX005 is a p38 mitogen-activated protein (MAP) kinase inhibitor formulated for sustained-release delivered via IA injection. It is designed to have both analgesic and anti-inflammatory benefits without the systemic side effects of oral p38 MAP kinase inhibitors. p38 MAP kinase is an enzyme in an inflammatory cascade that up regulates in response to stress and culminates in the elaboration of multiple pro-inflammatory cytokines, including interleukin I and tumor necrosis factor, as well as enzymes like matrix metalloproteinases that have the potential to destroy cartilage. In other studies, multiple oral p38 MAP kinase inhibitors have been evaluated in inflammatory diseases and pain and, while efficacy has been demonstrated, serious toxicity affecting multiple organ systems has been frequently observed.

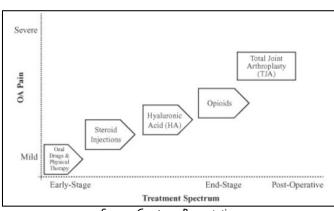


Figure 5. Weekly Pain Treatment Spectrum

Source: Company Presentation

#### **FX005: Development Program**

In May 2012 FX005 completed a phase IIa clinical trial in which 70 patients were randomized to FX005 and 70 patients were randomized to placebo. The phase IIa clinical trial demonstrated positive effects of FX005 on both pain and function. These effects increased substantially in a sub-population of patients with higher baseline pain scores.

A phase Ila clinical trial (Study FX005-2010-001) in 140 patients with knee OA was conducted as a multi-center, randomized, double-blind, placebo-controlled trial and consisted of a single ascending dose (SAD) phase followed by a single-dose proof-of-concept phase. In the SAD phase of the study escalating doses of Img, 10 mg, and 45 mg of FX005 were compared to blank PLGA microspheres and diluent in three cohorts of twelve patients, with six patients receiving FX005, three patients receiving blank PLGA microspheres, and three patients receiving diluent in each cohort. Diluent is a placebo containing all components of the FX005 formulation except the active drug and the PLGA microspheres. Each patient in the SAD phase was followed for safety and pharmacokinetics for six weeks after a single IA injection. FX005 was well-tolerated at each dose level and, as a result, the highest dose of 45 mg was advanced to the next phase.

In the proof-of-concept phase 52 patients were randomized to receive 45 mg of FX005, 26 patients were randomized to receive blank PLGA microspheres as a placebo control, and 26 patients were randomized to receive diluent as a placebo control, each as a single IA injection. Each patient was followed for 12 weeks after the injection for safety, pharmacokinetics, and efficacy. The primary endpoint was the change from baseline in the WOMAC pain subscale at four weeks. Secondary efficacy assessments included the WOMAC function subscale and responder status. FX005 demonstrated pain relief and functional improvement at four weeks, and the absolute magnitude of effect in both subscales was persistent through 12 weeks. These effects were substantially enhanced in a pre-specified exploratory subset analysis of patients with high baseline pain. FX005 also demonstrated efficacy in responder analysis. Overall, FX005 was well tolerated systemically and local tolerability was similar to that documented for marketed HA preparations.

At this point the FX005 clinical trial program has been put on hold by FLXN as the company focuses its resources on the nearer-term opportunities for FX007 and FX006.

## **FX006: Competition**

IR steroids and HA are currently the two marketed classes of IA products that would compete with FX006. IR steroids are generic and widely used as first-line therapy but leave the joint rapidly after injection and have efficacy that typically wanes within several weeks. FX006 has demonstrated that it persists in the joint at therapeutic concentrations for at least six weeks following injection, whereas there is no measurable IR TCA in the joint by that time. FX006 also provides prolonged analgesia significantly better than that seen with IR TCA. In addition to IR steroids, FX006 will compete with HA in patients considering something beyond an IR steroid injection. HA therapy, which has demonstrated only marginal pain relief over placebo in knee OA patients, generated US sales of \$504MM in 2013. The magnitude of pain relief demonstrated by FX006 to date is much greater than that seen in historic HA clinical trials. Also on the market are platelet-rich plasma injections, but these require on-site preparation from blood drawn from the patient, have generated questionable efficacy in controlled clinical trials, and are unlikely to be a broadly embraced therapeutic option for OA patients. Because platelet-rich plasma is a therapy derived from the individual patient's blood, it does not require and has not received FDA review or approval.

Other OA product candidates in clinical development include Anika Therapeutics' (ANIK-\$41.40-BUY) Cingal, a combination HA product that combines HA with an active ingredient (steroid) in a one-shot therapy. A CE Mark Cingal pivotal clinical trial was initiated in 2Q13 to enroll 370 patients at 25 centers in the EU and Canada. Enrollment was completed during IQ14. The trial has a six-month follow-up period. CE-Mark filling is expected in IH15. Fidia Farmaceutici's (Private) is developing Hymovis, a physical hydrogel based on HA with properties that appear to be similar to most approved HA products. Ampio Pharmaceuticals' (AMPE-\$6.44-NR) Ampion has a derivative of human serum albumin that is an IR product with anti-inflammatory properties currently in phase II/III trials. Other programs include OrthoTrophix's (Private) TPX-100, Carbylan BioSurgery's (Private) Hydros-TA, Merck Serono's (MRK.DE-€64.67-NR) FGF-18, and Allergan's (AGN-\$154.90-NR) botulinum toxin. Autologous cartilage transplantation products, like Carticel, are appropriate for focal defects in cartilage, not the kind of diffuse disease that is seen with OA. Stem cell approaches to OA are also being explored but are earlier in development.

## FX007 and FX005: Competition

Numerous post-operative pain treatments exist, including local administration with combinations of existing analgesic and anti-inflammatory drugs at the time of surgical wound closure, opioids, intravenous acetaminophen and NSAIDs, and femoral nerve blocks. Pacira Pharmaceuticals (PCRX-\$103.24-NR) has Exparel, a combination of bupivacaine and PCRX's DepoFoam delivery platform, to provide up to 24 hours of postsurgical pain control following a single intraoperative administration. FX005 would be positioned against oral opioids, as patients require very strong analgesic therapy prior to receiving a TJA. Opioids have numerous systemic side effects, including addiction and constipation, and also cause a higher incidence of falls and fractures in an older OA patient population.

## AstraZeneca Partnership

**FX007.** In 2010 FLXN partnered with AstraZeneca (AZN-\$68.50-NR) for the exclusive, royalty-bearing, worldwide rights to FX007. FLXN will owe AZN up to \$21MM upon the achievement of certain regulatory and development milestones for a first licensed product for OA indications or up to an aggregate of \$15MM upon the achievement of certain regulatory and development milestones for a first licensed product for non-OA indications. Upon commercialization of a product that results from the technology licensed under the agreement, FLXN will owe AZN tiered low-single-digit to low-double-digit royalties based on net sales, as well as up to \$75MM based on sales milestones. FLXN will pay royalties to AZN until the later of 12 years after the first commercial sale or the expiration of AZN's patents.

**FX005**. In 2009 FLXN partnered with AZN for worldwide rights to FX005. FLXN will owe up to \$17MM upon the achievement of certain regulatory and development milestones for a first licensed product for OA indications or up to an aggregate of \$11MM upon the achievement of certain regulatory and development milestones for a first licensed product for non-OA indications. FLXN will owe AZN tiered low- to high-single-digit royalties net sales as well as up to \$45MM in sales milestones. FLXN will also pay royalties to AZN on FX005 until the later of 12 years after the first commercial sale or the expiration of AZN's patents.

#### **OSTEOATHRITIS BACKGROUND**

OA is a type of degenerative arthritis that is caused by the progressive breakdown and eventual loss of cartilage in one or more joints. Arthritis is the most common cause of disability in the US and OA is the most common joint disease, affecting 27MM Americans. A recent study in the journal Arthritis & Rheumatism suggest that OA accounts for more than \$185B of annual healthcare expenditures in the US. OA commonly affects large weight-bearing joints like the knees and hips, but also occurs in the shoulders, hands, feet, and spine. Patients with OA suffer from joint pain, tenderness, stiffness, and limited movement that in many cases results in TJA.

Current therapies for OA focus on controlling pain and delaying surgery with oral and topical NSAIDs used to treat early stage pain. They have a limited effect on pain and are associated with serious side effects, including increased risk of serious cardiovascular (CV) thrombotic events, myocardial infarction, and stroke. These drugs can also cause serious gastrointestinal (GI) adverse events including bleeding, ulceration, and perforation of the stomach or intestines. For patients with moderate to severe OA pain, IA medicines, such as IR steroids and HA are injected into the joint. These are generally considered safe drugs, but they can leave the joint rapidly and fail to produce or maintain meaningful pain relief. For patients who progress to end-stage OA, physicians prescribe opioids, which, in addition to the risk of addiction, have numerous systemic side effects, such as respiratory depression, hypotension, and constipation, and cause a higher incidence of falls and fractures in older OA patients. As a result of these suboptimal therapies, many OA patients experience persistent and worsening pain, which ultimately, for many patients, results in the decision for TJA. Further, because the initial joint replacement wears out over time, the younger the patients are at the time of the joint replacement, the more likely it is that they will require repeat surgery in their lifetime.

According to IMS Health, approximately 10MM patients in the US per year receive IA steroid injection treatments in the knee, hip, shoulder, hand, or foot, with knee OA the most common. In 2012 the number of knee injections of IA steroids increased ~12% to 3MM patients, with an additional ~1.3MM patients who got HA knee injections. However, recent negative guidance from the American Academy of Orthopedic Surgeons (AAOS) and the Osteoarthritis Research Society International (OARSI) may begin to put downward pressure on HA sales.

Figure 6. OA Pain Treatment Spectrum

## TJA and Post-Operative Pain Treatments

Due to severe pain that can no longer be controlled therapeutically, many patients opt to have knee replacement surgery (or TJA) which is both costly and painful. Total knee arthroplasty can cost between \$25,000 and \$35,000 on average, and as many as 20% of patients can be dissatisfied with the outcome of this procedure. The earlier a patient receives TJA, the more likely the patient may need repeat replacement surgery in following years.

#### **MANAGEMENT**

Michael D. Clayman, MD, Co-founder, President, CEO, and Director. Dr. Clayman has served since FLXN's inception in 2007. Previously, Dr. Clayman had a lengthy career at Eli Lilly and Company, a global pharmaceutical company, where he was most recently vice president of Lilly Research Laboratories and general manager of Chorus, Lilly's early phase development accelerator. During his career at Lilly, Dr. Clayman also led its global regulatory affairs division; the cardiovascular discovery research and clinical investigation; research and development at Advanced Cardiovascular Systems, a medical device subsidiary of Lilly; the internal medicine division; the Lilly Clinic, Lilly's dedicated phase I unit; and served as chair of Lilly's bioethics committee. Prior to his tenure at Lilly, Dr. Clayman was an assistant professor in the School of Medicine at the University of Pennsylvania, where his research centered on the immunopathogenesis of renal disease. Dr. Clayman is the recipient of the Physician Scientist Award from the National Institutes of Health. Dr. Clayman earned a BA, cum laude, from Yale University and an MD from the University of California, San Diego School of Medicine. Following an internship and residency in internal medicine at the University of California, San Francisco Moffitt Hospitals, Dr. Clayman completed clinical and research fellowships in nephrology at the University of Pennsylvania.

Neil Bodick, MD, PhD, co-founder, and CMO. Dr. Bodick has served as chief medical officer since FLXN's inception in 2007. Previously, Dr. Bodick was at Eli Lilly and Company, where he founded Chorus and served as chief medical officer and chief operating officer. Prior to that, Dr. Bodick was responsible for early phase clinical investigation at Lilly Research Laboratories. Dr. Bodick also was assistant professor in the School of Medicine at the University of Pennsylvania, where his research centered on the development of computer-based systems to support image-intensive diagnosis. Dr. Bodick holds 13 patents in the areas of neuroscience and computer science and is the recipient of the Biomedical Research Service Award and the New Investigator Research Award from the National Institutes of Health. Dr. Bodick earned an AB from Cornell University, a PhD in neuroscience from Columbia University, an MD from the Albert Einstein College of Medicine, and an MBA from the Wharton School of the University of Pennsylvania.

Frederick W. Driscoll, CFO. Mr. Driscoll has served as chief financial officer since May 2013. Prior to joining FLXN Mr. Driscoll was chief financial officer at Novavax, Inc., a publicly traded biopharmaceutical company since 2009. Previously, Mr. Driscoll also served as chief financial officer from 2007 to 2008, and subsequently chief executive officer from 2008 to 2009, at Genelabs Technologies, Inc., a publicly traded biopharmaceutical and diagnostics company; chief financial officer at Astraris, Inc., a private biotechnology company, from 2006 to 2007; and chief executive officer at OXiGENE, Inc., a biopharmaceutical company, from 2002 to 2006. Mr. Driscoll earned a bachelor's degree in accounting and finance from Bentley University.

Anjali Kumar, PhD, FAHA Vice President of Nonclinical R&D and Scientific Affairs. Dr. Kumar brings FLXN ~15 years of experience in drug discovery, pharmacology, and preclinical development gained in large pharmaceutical companies, small biotech, and a consulting company environment. She has experience advancing several small molecules and proteins into initial clinical development and continuing to support them through later stages of development and eventual regulatory approval. Dr. Kumar has worked in the area of inflammation in musculoskeletal, respiratory, and cardiovascular diseases. She was previously vice president of R&D at Clinquest, Inc., where she led the strategic drug development consulting team that worked on multiple programs in both the US and in Europe. Prior to that, she was senior director, pharmacology, at Critical Therapeutics, Inc. and principal scientist and project leader at Wyeth Research/Genetics Institute. She received her postdoctoral training at Pharmacia and Upjohn and holds a PhD in bioengineering from Georgia Institute of Technology and a bachelor's degree in chemical engineering from the Indian Institute of Technology.

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Source: Company reports and SSRP estimates

Specialty Pharmaceuticals
Jim Molloy (617) 532-6421 jimm@ssrp.com

Flexion Clinical development trial timelines 2013A 2014E 2015E 2016E 2017E 2018E 2019E 1QA 2QA 3QA 4QA 1QA 2QA 3QE 4QE 1QE 2QE 3QE 4QE FX006 - Osteoarthritic pain; 505(b)(2) study data Phase 2a PK/PD study - positive data June 17, 2014 Confirmatory phase 2b dose-ranging study - 4/30/114 started phase 2b data LT safety LT Safety/repeat dose study Phase 3 data phase 3 NDA filing NDA FDA approval & launch FDA LAUNCH EU comparatory trial data phase 3 EU filing EU EMA approval & launch **EMA** LAUNCH FX007 - post operative pain; 505(b)(2) study meet Pre-IND meeting with FDA Proof of concept study - bunionectomy p-o-k data Phase 2 phase 2 data Phase 3 trials phase 3 data NDA filing NDA FDA approval & launch

**Figure 7. Potential Clinical Trial Timelines** 

Figure 8. Quarterly Income Statement

Flexion										
Quarterly income statement										
(\$000 except per share)	1QA	201 2QA	3A 3QA	4QA	2013A Year	1QA	201 2QA	4E 3QE	4QE	2014E Year
Revenues	<u> 187</u>	ZQA	JQA	TWA	<u>rear</u>	IQA	ZQA	JQL	<u> 70 L</u>	<u>rear</u>
FX006 - OA pain FX007 - post operative pain FX005 - end stage OA pain										
Total Revenue										
Expenses: Cost of Revenue (COGS)										
Gross Margin	-	-	-	-		-	-	-	-	0
Research and development	2,950	2,950	2,942	2,219	11,061	4,151	3,615	4,250	4,250	16,266
General and administrative Total operating expenses	1,788 4,738	1,788 4,738	1,788 4,729	1,340 3,560	6,704 17,765	2,284 6,435	2,234 5,849	2,500 6,750	2,500 6,750	9,518 25,784
Income (loss) from Operations	(4,738)	(4,738)	(4,729)	(3,560)	(17,765)	(6,435)	(5,849)	(6,750)	(6,750)	(25,784)
Interest income (expense), net Other income (exp)	(39) (64)	(39) (64)	(39) (64)	(98) (15)	(215) (207)	(81) (26)	28 (110)	(25) (50)	(25) (50)	(103) (236)
Income (loss) before taxes Income tax exp (benefit)	(4,841)	(4,841) -	(4,832)	(3,673)	(18,187)	(6,542)	(5,931)	(6,825)	(6,825)	(26,123)
Net Income (Loss)	(4,841)	(4,841)	(4,832)	(3,673)	(18,187)	(6,542)	(5,931)	(6,825)	(6,825)	(26,123)
Earning per Share (EPS)	(\$6.13)	(\$6.13)	(\$6.12)	(\$4.65)	(\$23.02)	(\$0.86)	(\$0.38)	(\$0.43)	(\$0.43)	(\$1.90)
Weighted avg. shares (000)	789	790	790	790	790	7,633	15,619	15,769	15,919	13,735
Source: Company reports and SSRP estimates  Surce: Company reports and SSRP estimates  Sim Molloy (617) 532-6421 jimm@ssrp.com										

Figure 9. Annual Income Statement

Flexion								
Annual income statement								
(\$000 except per share)	2013A	2014E	2015E	2016E	2017E	2018E	2019E	Comments
Revenues								
FX006 - OA pain						\$136,393	\$472,028	FDA approval 1Q18
FX007 - post operative pain							15,000	FDA approval 2H19
FX005 - end stage OA pain							0	FDA approval 2H19
Total Revenue	\$0	\$0	\$0	\$0	\$0	\$136,393	\$487,028	
Expenses:								
Cost of Revenue (COGS)	<u>-</u>					20,459	73,054	
Gross Margin	-	-	-	-	-	115,934	413,974	
R&D	11,061	16,266	32,250	34,500	31,750	30,000	45,000	
G&A	6,704	9,518	12,550	15,250	14,400	24,500	109,750	
Total op exp	17,765	25,784	44,800	49,750	46,150	54,500	154,750	
Inc/(loss) from Ops	(17,765)	(25,784)	(44,800)	(49,750)	(46,150)	61,434	259,224	
Int income (exp), net	(215)	(103)	(100)	(100)	(100)	(100)	(99)	
Other expenses, net	(207)	(236)	(200)	(200)	(200)	(200)	(199)	
Inc/(loss) before taxes	(18,187)	(26,123)	(45,100)	(50,050)	(46,450)	61,134	258,926	
Income tax exp (benefit)	-	-	-	-	-	-	64,732	
Net Income (Loss)	(\$18,187)	(\$26,123)	(\$45,100)	(\$50,050)	(\$46,450)	\$61,134	\$194,195	
Earning per Share	(\$23.02)	(\$1.90)	(\$2.20)	(\$2.30)	(\$2.00)	\$2.35	\$7.00	
Weighted avg. shares (000)	790	13,735	20,482	21,732	23,232	24,732	26,482	
Fully diluted shares (000)	1,439	14,748	21,432	22,732	24,482	25,982	27,732	
Cash balance	\$16,566	\$67,718	\$107,963	\$61,263	\$18,663	\$84,422	\$280,766	Cash through 2H15
Specialty Pharmaceuticals Source: Company reports and SSRP estimates  Jim Molloy (617) 532-6421 jimm@ssrp.com								

Figure 10. Balance Sheet

Flexion									
Balance sheet									
(\$000's except per share)	2013A	1Q14A	2Q14A	2014E	2015E	2016E	2017E	2018E	2019E
ASSETS:									
Current assets									
Cash and cash equivalents	16,188	35,789	12,015	67,593	108,913	64,213	23,363	89,122	285,466
Marketable securities	250	42,723	59,977						
Related party receivable									
Prepaid expenses and other	182	845	684						
Other									
Total current assets	16,620	79,358	72,676	68,593	110,163	65,713	24,863	90,872	287,716
PP&E	375	393	388	400	425	425	450	500	500
Def financing costs	1,624	000	500	400	420	420	400	000	000
Intangible asset	1,024								
Total Assets	18,776	79,903	73,212	69,118	110,588	66,138	25,313	91,372	288,216
	-, -	-,	-,		-,	,	-,-	- ,-	,
LIABILITIES									
Total current liabilities	5.037	5,383	4,447	6,250	4.750	5.000	5.500	5.600	5,750
Total liabilities	83,480	8,522	7,085	9,100	10,250	11,500	12,750	15,000	15,250
Shareholders Equity									
Common stock	1	16	16	20	20	20	20	20	20
Additional paid-in-capital	1,459	144,070	144,744	158,826	243,296	245,646	248,271	250,946	253,346
Other comp income	(0)	1	3						
Accumulated deficit	(66,163)	(72,705)	(78,636)	(98,828)	(142,978)	(191,028)	(235,728)	(174,595)	19,600
Total shareholders' equity	(64,704)	71,381	66,127	60,018	100,338	54,638	12,563	76,372	272,966
Total liabilites & net worth	18,776	79,903	73,212	69,118	110,588	66,138	25,313	91,372	288,216
Source: Company reports and	SSRP estir	nates	'						

Figure 11. Statement of Cash Flow

Flexion									
Statement of cash flows									
(\$000's except per share)	2013E	1Q14A	2Q14A	2014E	2015E	2016E	2017E	2018E	2019E
Operating Activities									
Net Income (Loss)	(\$18,187)	(\$6,542)	(\$12,473)	(\$26,123)	(\$44,150)	(\$48,050)	(\$44,700)	\$61,134	\$194,195
Adjustments:									
Depreciation	80	27	53	100	100	100	100	125	150
Stock-based compensation expense	996	436	1,094	1,500	1,750	1,750	2,000	2,250	2,250
Amort mktbl securities premium	151	9	100						
Loss on disposal of Equipment	14								
Other non-cash charges	63	4	8						
Changes in assets and liabilites	695	(422)	(1,043)	350	900	1,000	1,250	2,000	(250)
Net cash from operations	(16,187)	(6,487)	(12,261)	(24,173)	(41,400)	(45,200)	(41,350)	65,509	196,345
Investing Activities									
Purchase of equipment	(405)	(45)	(62)	(500)	(500)	(500)	(500)	(750)	(1,000)
Changes in restricted cash	(98)	, ,	, ,	` '	, ,	, ,	, ,		
Purchase mktble securities	(15,016)	(42,732)	(62,183)						
Sales of mktble securities	31,160	250	2,360						
Net cash from investing	15,641	(42,526)	(59,884)	(500)	(500)	(500)	(500)	(750)	(1,000)
Financing Activities									
Proceeds from related party notes									
Payments related party notes									
Net cash from financing	3,899	68,614	67,973	56,477	83,220	1,000	1,000	1,000	1,000
Net change in cash	3,353	19,601	(4,173)	31,804	41,320	(44,700)	(40,850)	65,759	196,345
Cash at beginning of year	12,835	16,188	16,188	35,789	67,593	108,913	64,213	23,363	89,122
Cash at end of year	16,188	35,789	12,015	67,593	108,913	64,213	23,363	89,122	285,466
Source: Company reports and SSRP es	stimates								

## **RISKS TO PRICE TARGET ESTIMATE**

Exogenous events could impact our outlook. We believe pharmaceutical companies have the least control over competitive, political, and regulatory risks. Although we have incorporated competitive assumptions into our forecasts, there may be other risks beyond the scope of our analysis. Changes in the drug reimbursement system, as well as any political or regulatory amendments, may significantly influence the earnings power of these companies.

Actual clinical results and the FDA's conclusions may deviate from expectations. Many of our assumptions are based on a review of incomplete clinical trial data available in the public domain. Often, our conclusions are drawn from early stage data, which may not be reflected by pivotal studies. Furthermore, the FDA's conclusions may not coincide with our own, materially changing our revenue and earnings assumptions.

Compliance issues, product recalls, and other mandates by regulatory authorities could materially change our expectations. Regulatory compliance issues, ranging from accounting irregularities to defective manufacturing practices, could materially change our assumptions and earnings outlook. Unanticipated product recalls and labeling changes could also have adverse consequences on our earnings assumptions.

Legal risks could lead to additional liabilities and revenue loss. In addition to the expenses incurred by patent challenges, product liability and other legal suits could occur and lead to additional liabilities and revenue loss, which could substantially change our financial assumptions.

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### Investment Rating Distribution for the Period 4/1/14 through 6/30/14:

Rating	<u>Count</u>	<u>Percentage</u>	Investment Banking Services (12 months)
BUY	33	80%	12%
NEUTRAL	8	20%	0%
SELL	0	0%	0%
Companies under coverage at 6/30/14	41	100%	10%

#### We have assigned an investment rating for at least one year for the following subject companies mentioned in this report:

## **FLXN**

Ratings History

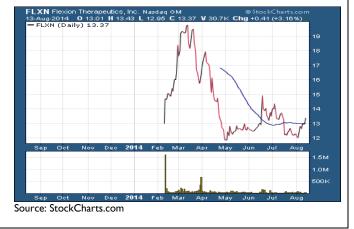
 Date
 Rating
 Share Price
 Price Target

 8/14/14
 BUY
 \$13.37
 \$25.00

#### **DRTX Investment Risks**

- Exogenous events could impact our outlook. Pharmaceutical companies have the least control over competitive, political, and regulatory risks.
- Actual clinical results and the FDA's conclusions may deviate from expectations.
- Compliance issues, product recalls, and other mandates by regulatory authorities could materially change our expectations.
- Legal risks could lead to additional liabilities and revenue loss.

Valuation Method for Price Target: Sum of the parts



## **ANIK**

Ratings History			
Date	Rating	Share Price	Price Target
9/19/11	NEUTRAL	\$5.74	\$9.00
12/28/11	BUY	\$9.10	\$12.00
3/1/12	BUY	\$11.36	\$16.00
4/17/12	BUY	\$16.25	\$21.00
12/4/12	BUY	\$11.95	\$14.00
5/3/13	BUY	\$13.11	\$16.00
6/19/13	BUY	\$17.55	\$20.00
8/2/13	BUY	\$24.32	\$28.00
10/31/13	BUY	\$26.67	<b>Under Review</b>
11/1/13	BUY	\$29.87	\$35.00
12/23/13	BUY	\$36.05	\$47.00
2/26/14	BUY	\$34,47	\$60.00

## **ANIK Investment Risks**

- ANIK has little experience in distributing its own products. Building a
  dedicated sales force takes time and is not a smooth process.
- Consolidation of manufacturing facilities. ANIK has experienced product delays, but possibility of future manufacturing disruptions is low.
- Additional FDA delays. ANIK hopes to bring a number of products already approved in the EU to the US.

Valuation Method for Price Target: 10-year DCF analysis

