INSMED INC Form FWP September 28, 2012

Developing Innovative Inhaled Treatments for Serious Lung Infections August 2012 Free Writing Prospectus Registration Statement No. 333-182124

This presentation contains forward-looking statements which are made pursuant to provisions of Section 21E of the Securities Exchange Act of 1934. Investors are cautioned that such statements in this presentation, including statements relating to our financial position, projected year end cash and cash runway, the status and the results of preclinical studies and clinical trials and preclinical and clinical data described herein, the timing of responses to information and data requests from FDA, the development of our products, our estimates of the size of the potential markets for our product candidates, and the business strategies, evaluations, plans and objectives of management, constitute forward-looking statements which involve risks and uncertainties that could cause actual results to differ materially from those anticipated by the forward-

looking
statements.
Our
results
may
be
affected
by
such
factors
as
the
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and
timing
of
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and
other
regulatory reviews and approvals, if at all, competitive developments affecting our product development,
delays in product development or clinical trials, and patent disputes involving currently developing products.
The risks and uncertainties include, without limitation, we may experience unexpected regulatory actions,
delays or requests, our future clinical trials may not be successful, we may be unsuccessful in developing our
product candidates or receiving necessary regulatory approvals, we may experience delays in our product
development or clinical trials, our product candidates may not prove to be commercially successful, our
expenses may be higher than anticipated and other risks and challenges detailed in our filings with the U.S.
Securities and Exchange Commission, including our Annual Report on Form 10-K for the year ended
December
31,
2011
and
our
Quarterly
Report
on
Form
10-O

2012. Investors

for the quarter ended June 30,

are cautioned not to place undue reliance on any forward-looking statements which speak only as of the date of this presentation. We undertake no obligation to publicly release the results of any revisions to these forward-looking statements that may be made to reflect events or circumstances that occur after the date of this release or to reflect the occurrence of unanticipated events.

Safe Harbor Statement

2 Insmed: Value Proposition Attractive Late-Stage Opportunity ARIKACE has strong Phase

ARIKACE has strong Phase 2 efficacy and safety data in CF Amikacin is an FDA-approved antibiotic, long recognized as one of the most effective treatments for gram-negative infections

Compelling

**Business Model** 

Two orphan indications with high unmet need and combined global market potential of over \$1 billion

Limited commercial infrastructure required

Strong IP and potential for extended exclusivity

Strong Balance

Sheet &

Experienced

Management

As of 6/30/12, company reported ~\$75 million in cash, investments & CD We believe cash is sufficient to take Company through the availability of top-line data for both CF CLEAR-108 trial and TARGET-NTM trial Management has extensive anti-infective development, regulatory, and commercial experience

#### **ARIKACE**

(R)

\* is a highly differentiated product that offers a compelling business opportunity in two orphan diseases

\* ARIKACE

(R)

is a registered trademark of Insmed Incorporated ARIKACE (liposomal amikacin for inhalation), is in Phase 3 (CLEAR-108) for cystic fibrosis (CF) *Pseudomonas* (*Pa*) lung infections and Phase 2 (TARGET-NTM) for non-TB mycobacteria (NTM) lung infections

ARIKACE: Amikacin Summary
Amikacin is an FDA-approved antibiotic with proven efficacy in the treatment of gram-negative infections, including Pseudomonas and NTM Aminoglycoside antibiotic
Value of the IV use has been limited by nephro-toxicity and ototoxicity
ARIKACE (liposomal amikacin for inhalation) delivers high, sustained levels of drug to

the lung while reducing systemic exposure to well below established toxicity levels

4
ARIKACE: Proprietary Liposomal Formulation Provides Basis for Important Potential Benefits
Potential Benefit
Lipid Polar Head Groups
(at Both Surfaces)
Lipid Hydrophobic Chains
(Bi-Layer Interior)

Water Core (where Amikacin resides)

ARIKACE delivers the potency of Amikacin at the site of the lung infection;

engineered specifically for improved PK-PD\* profile in the lung providing for potential enhanced efficacy, safety and convenience benefits

Greater efficacy by reaching infection site

Greater efficacy by reaching infection site

Greater efficacy and once-a-day dosing

Reduces potential for systemic toxicity

Engineered Specifically for Lung Delivery

Prolonged lung residence time

Biofilm penetration

Preferential uptake into macrophages

Minimal systemic exposure

\* Pharmacokinetic-Pharmacodynamic (PK-PD)

ARIKACE: Delivery Using Proprietary eFlow

(R)

Technology

ARIKACE is delivered once daily via the state-of-the-art PARI Optimized, Investigational eFlow Nebulizer System with Advanced Mesh Technology Fast

drug delivery with efficient

lung deposition
Small, portable, silent and
cordless
device weighs less than
10 ounces.
eFlow Technology Device
exclusivity
from PARI Pharma for
15 years after first commercial
sale of ARIKACE
\* eFlow
®

is a registered trademark of PARI Pharma GmbH

6
ARIKACE: Development Plan
Target-NTM
Study in U.S.
ARIKACE vs. placebo in recalcitrant patients who are on a stable ATS/IDSA guidelines-based
multi-drug
treatment

regimen; N 100 No inhaled antibiotics approved for treating NTM lung infections and little known competitive activity in clinic Study initiated in May-2012 top-line results from randomized portion of trial projected in 4Q13 CLEAR-109 CF Pseudomonas Study for U.S. FDA removed the clinical hold for CF Pa Phase 3 study in May Insmed will defer plans to initiate

Phase

3 study of **ARIKACE** in the U.S. for CF patients until the Company reviews top-line results from CLEAR-108 Insmed is focusing on CLEAR-108 (CF Pa Phase 3 Study) and TARGET-NTM (NTM Phase 2 Study) CLEAR-108 CF Pseudomonas Study for EU/Canada **ARIKACE** VS. Tobi (inhaled tobramycin solution); N 300 Builds off of strong Phase 2 efficacy and safety data Broad population with preferred trial design Trial initiated in April 2012 top-line results projected in mid-2013 Eligible patients roll-over into open-label **ARIKACE®** long term safety and tolerability study, CLEAR-110 \* Tobi (R)

is a Registered Trademark of Novartis Pharmaceuticals Corporation

Arikace Cystic Fibrosis
Epidemiology and Disease Description
Cystic fibrosis is a life-threatening disease with significant unmet needs
Affects about 70,000 children
and adults worldwide (30,000 in
U.S. and Europe, each)
Inherited disease that causes

thick, sticky mucus to build up in the lungs Despite expanded use of current products, lung function often

continues to decline

High treatment burden

major compliance issue

Source: Adapted from Cystic Fibrosis Foundation, Patient Registry

Annual Data Reports 2010

Mean = 51.2%

Pseudomonas Lung Infections Increase with Patient Age

Age (Years)

0.0

10.0

20.0

30.0

40.0

50.0

60.0

70.0

80.0

<2

2 to 5

6 to 10

11 to 17

18 to 24

25 to 34

35 to 44

45+

Q

ARIKACE: Cystic Fibrosis
Need for New Inhaled Antibiotics
Current inhaled antibiotics produce modest efficacy in a limited patient
population providing an opportunity for ARIKACE to become first-line treatment
Current inhaled antibiotics are not indicated for a significant segment of the

CF population -patients with FEV-1 % predicted of greater than 75%
Improvement in lung function with current inhaled antibiotics is not sustained
in the off-treatment period, and appears to decline over multiple cycles
Lung function continues to decline at an average rate of 1% to 3% per year with some patients experiencing much greater declines

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9
Cayston
®
vs. Tobi
®
CF Phase 3 Trial Results: Pulmonary Function
Lung Function
Adjusted
```

```
Mean
Relative
Change
in
FEV
1
%
Predicted
Source: 2010 North American CF Conference Poster 305 and Slide Presentation, 10/10.
  Cayston
®
(aztreonam
for
inhalation
solution)
is
registered
trademark
of
Gilead
Sciences.
** Tobi
(Tobramycin Inhalation Solution) is a registered trademark of Novartis.
*** AZLI = Cayston; TIS = Tobi
Lung function returned to baseline or lower during each off treatment
period and at the end of 24 weeks, both treatment groups showed a
decline in lung function from baseline
Week:
2
AZLI
TIS
+7.8
P
= 0.0001
95% CI (3.86, 11.73)
-6
-4
-2
0
2
4
6
8
10
12
0
4
8
```

12

16

20

24

AZLI/

TIS

28 Days

AZLI/

TIS

28 Days AZLI/

TIS

28 Days

Off-Treatment

Period

P = 0.033

P = 0.003

(36/36)

(36/35)

(33/36)

```
(32/35)
(34/35)
(34/34)
(N=ARIKACE/Placebo)
ARIKACE: Cystic Fibrosis
Phase 2 Pooled Results (560mg QD): Pulmonary Function
(N)
Mean (SE)
ARIKACE demonstrated statistically significant and clinically meaningful
improvement in pulmonary function throughout the 28-day treatment
period that was sustained through the off-treatment period
-6%
-3%
0%
3%
6%
9%
12%
15%
18%
0
7
14
21
28
56
Visit Day
% Change in FEV
(ml) vs. Baseline
Arikace
560mg
```

Placebo

Visit Days

ARIKACE: Cystic Fibrosis

Open Label Extension (TR02-105): Durability of Response

Treatment Period

- \* Significance at end of treatment over 6 cycles
  \*\* Significance 56 days off-treatment over 6 cycles

An open label extension study demonstrated the sustained efficacy of ARIKACE during and between multiple cycles of therapy Patients Receiving 560 mg ARIKACE Once Daily for 28 Days and Off-Treatment for 56 Days p=0.0001\*\* p<0.0001\* Cycle Cycle Cycle Cycle Cycle Cycle 

ARIKACE: Cystic Fibrosis

Phase 3 Program Has Been Initiated in Europe and Canada Insmed has reached agreement with EMA and Health Canada on pivotal study requirements for CF patients with Pseudomonas lung infections

<sup>\*</sup> Patients who complete CLEAR-108 are eligible to participate in CLEAR-110, which is a long term open-label extension study in which patients receive ARIKACE every other month for up to 2 years CLEAR-108: Phase 3 Primary Efficacy Study (vs. Tobi

® , N 300)\* Primary End-Point: Relative Change in FEV-1 at week 24 Key Secondary End-Point: Time to First Pulmonary Exacerbation Patient Population: Patients ages 6 and above with FEV-1 % Predicted 25%

Approximately 260 patients required to demonstrate non-inferiority at agreed upon Top-Line results projected in mid-2013 margin with 80% power

ARIKACE: Non-TB Mycobacteria
Disease Description and High Unmet Need
NTM
are
intracellular
organisms
that

invade and multiply chiefly within macrophages the lung and are characteristically resistant to most antibiotics NTM lung infections occurs commonly in patients with structural lung disease (e.g. COPD, bronchiectasis and CF), patients taking immunosuppressive medications, and in postmenopausal women without clear risk factors NTM lung infections are often debilitating and progressive Virtually all patients experience chronic or recurring cough Other frequent symptoms including sputum production, fatigue, malaise, dyspnea, fever, hemoptysis, chest pain and weight loss Non-TB mycobacteria (NTM) are intracellular pathogens that can cause severe, chronic pulmonary disease with limited effective treatment options ATS -American Thoracic Society; IDSA -Infectious Disease Society of America Current treatment for NTM lung disease requires lengthy multi-drug regimens that can be poorly tolerated and have limited efficacy, especially in patients with severe disease or in those who

have failed prior treatment attempts David E. Griffith, M.D., Lead author of the ATS/IDSA's diagnosis and treatment guidelines for NTM, and Professor of Medicine at the University of Texas Health Science Center

at

Press Release, 6/27/12)

Tyler;(Insmed

ARIKACE: Non-TB Mycobacteria
Market Opportunity
The prevalence of this debilitating chronic disease continues to grow, and
the current NTM treatment paradigm lacks acceptable treatment options \*
Sources: 1. Clarity Pharma Research, Patient Chart Study, 2012.
2.

Adjemian et al. Prevalence of Pulmonary Nontuberculous Mycobacterial Disease among Medicare Beneficiaries, USA, 1997-2007, American Journal of Respiratory and Critical Care Medicine. Apr 2012. 3. SDI Healthcare Database, July 2009. Mycobacterium avium Complex; M. abscessus Mycobacterium abscessus U.S. Patients Diagnosed with NTM Lung Infections in 2011 50K 40K 21K Diagnosis growing at~ 8% annually MAC and M. abscessus\* account for 75%-85% of NTM lung disease in U.S. Mean age is ~ 57 years with 53% treated with antibiotics Treated patients use an average of 7.6 antibiotic courses per year 3 Average length of inpatient hospital stay is 10.2 days 3 Patients over the age of 65 years were 40% more likely to die than those without NTM from 1997 to 2007 2 \* Mark Rolfe, M.D. FCCP, President of New Lung Associates P.A., Medical Director of the Lung Transplant and Adult Cystic Fibrosis Programs at Tampa General Hospital; Insmed press release, June 27, 2012 0 10,000 20,000 30,000 40,000

50,000 60,000 NTM Patients Diagnosed NTM Patients Diagnosed with MAC or M. Abscessus

MAC & M.

abscessus

Patients Treated with Anitbiotics

1

ARIKACE: Non-TB Mycobacteria

Rationale for ARIKACE

NTM lung infections are difficult to treat since NTM are taken up and multiply inside lung macrophages and most antibiotics have poor macrophage penetration

Amikacin IV is a recommended treatment for MAC and

M. abscessus in the ATS/IDSA's NTM diagnosis and treatment

guidelines 1 but use is limited due to nephroand oto-toxicity The proprietary liposomal formulation enables ARIKACE to be preferentially taken up and concentrated in the lung macrophages while potentially decreasing systemic exposure and related toxicities **ARIKACE** was shown to have superior in vitro activity against MACand M. abscessus vs. free amikacin **ARIKACE** is well positioned become the

first

drug

approved

for

NTM

lung

infections

ARIKACE opportunity: achieve superior efficacy in NTM treatment by better penetrating lung macrophages where NTM bacteria reside while limiting systemic drug exposure

Sources: 1. Griffith et al. ATS/IDSA Statement: Diagnosis, Treatment, and Prevention of NTM Diseases, American Journal of Respiratory and Critical Care Medicine, 2007.

Study conducted by L. E. Bermudez at Oregon State University. (Data on File)

16 ARIKACE: Non-TB Mycobacteria TARGET-NTM Clinical Study Initiated in Mid-2012 Trial Design and Patient Population (N 100):

Randomized, double-blind, placebo controlled Phase 2 study in patients with recalcitrant/persistent NTM lung infections who are on a stable ATS/IDSA

guidelines-based multi-drug treatment regimen

Patients receive ARIKACE or placebo daily for 84 days; then all patients can receive ARIKACE 560 mg in an open-label manner for an additional 84 days

Study population: patients ages 18 to 75

Key Inclusion Criteria: History of chronic infection with either Mycobacterium avium

complex (MAC)

or

Mycobacterium

abscessus

or

mixed

infection

with

both

species

Primary endpoint: Change in mycobacterial culture results from baseline to end of

treatment [Time

Frame:

84 days]

Insmed appears to be the only company with an NTM clinical program;

top-line Phase 2 data projected in 4Q 2013

There have been very few clinical trials to support current NTM treatment recommendations, and no new drugs have been assessed in randomized trials for NTM lung disease in many years. (Insmed Press Release, June 27, 2012) according to Kenneth N. Olivier, M.D., M.P.H., Principal Investigator of the study and staff pulmonologist at the NIAID, part of NIH

```
17
Projected
Cash at year
end 2012
(including cash,
investments & CD
)
Approximately $60 to $64 million currently forecast
```

We believe cash is sufficient to take Company through the availability of top-line data for both CLEAR-108 and TARGET-NTM top-line results

Current Overview: Capital Structure and Key Financials

**Balance Sheet** 

Cash of ~\$75 million as of June 30, 2012 consisting of cash,

investments & CD

Present Capital

Structure

(INSM)

26.5 million fully diluted shares:

24.9 million Common Shares

1.6 million options, restricted stock units, and warrants

Insmed has a strong cash position

18 Appendix Addressing the Potential for Cross-Resistance of ARIKACE

19

Summary: Addressing Potential for Cross-Resistance in

**ARIKACE** 

While resistance to TOBI (tobramycin) has been documented, we believe there is no cross-resistance in ARIKACE (amikacin) for the following reasons.

Well-characterized clinical isolates of Pseudomonas aeruginosa (Pa) from Dr. Burns collection have been tested against amikacin and

Edgar Filling. II Colvie B II Collin I VII		
ARIKACE.		
ARIKACE		
has		
shown		
activity		
against		
aminoglycoside-resistant		
and		
multi-drug		
resistant		
isolates.		
Dr.		
Burns		
felt		
ARIKACE performed a bit better than free amikacin. (Report on file.)		
Overall, amikacin has lower potential for inducing resistance as		
compared to tobramycin (literature).		
Additionally,		
aminoglycoside-inactivating enzymes elaborated by Pa are different for these two aminoglycosides. Thus, we there is no		
complete cross resistance. The issue of emerging tobramycin resistance secondary to TOBI (inhaled antibiotic) use is not		
completely		
quantified.		
However,		
it		
is		
primarily		
due		
to		
poor		
compliance		
with		
the		
prescribed		
regimen		
of		
TOBI.		
Patients		
do		
not take		
the drug twice a day consistently. This leads to drug levels much below the MICs of most phenotypes of Pa for prolonged peri-		
and thus increased potential for emergence of resistance.		
Additionally, there is non-specific binding of cationic tobramycin to		
sputum and further low levels available to microbes. Typically, levels >10x of the MICs are needed for entire dosing interval		

sputum and turther low levels available to microbes. Typically, levels >10x of the MICs are needed for entire dosing interval. Thus, compliance with dosing regimen is critical as is penetration of antibiotics into biofilms.

Features of ARIKACE that overcome some of the issues responsible

for resistance include: charge neutral liposomes shield

amikacin, providing penetration into biofilm, and high Cmax and AUC, enabling once a day dosing and improved compliance. unique features of ARIKACE will reduce potential for emergence of amikacin resistance vs. free aminoglycoside for inhalation Most importantly, the sustained clinical benefit of Arikace in the off month

and convenience of once a day will shape the use of

inhalation antibiotics in CF patients.

Use of ciprofloxacin is known to contribute to emergence of Pa isolates w	with antimicrobial resistance.	Tobramycin is also use
---	--------------------------------	------------------------

IV

for

treatment

of

exacerbations

and

for

tune-ups.

This

may

also

be

contributing

to

emergence

of

resistance

as

low

levels

of

drug reach the lung after IV use.

Our phase 2 data have shown that 65% of isolates were resistant to aminoglycosides and ~90% were mucoid variant. However were able to demonstrate reduction in bacterial density and improvement in lung function and pros. Thus, we expect to have significant treatment effect in phase 3 studies even if isolates

are resistant. We have also done in vitro work against mdr isolates and shown ARIKACE to be effective.

```
21
Percent Change in FEV
1
ITT
Visit Day
Arikace 560 *
15.4% (16.5)
18.4% (21.3)
```

- 13.2% (15.3)
- 13.2% (16.2)
- 11.5% (16.4)
- 13.2% (24.3)
- Arikace 280 \*
- 10.9% (10.6)
- 9.4% (12.6)
- 9.6% (12.5)
- 10.1% (12.8)
- 1.7% (9.0)
- 2.0% (8.6)
- Placebo \*
- 0.6% (11.7)
- -3.2% (12.2)
- 1.8% (10.9)
- 2.2% (11.9)
- -0.3% (12.0)
- -4.4% (13.0)
- \* Mean (SD)
- Arikace 280
- Placebo
- Arikace 560
- p=0.016
- p=0.005
- p=0.07
- p=0.04

22 Change in FEV 1 (% predicted) ITT Visit Day Arikace 560 \* 12.9% (17.2) 15.8% (22.5)

- 10.5% (15.6)
- 11.0% (16.4)
- 8.6% (17.7)
- 13.8% (26.2)
- Arikace 280 \*
- 10.8% (10.8)
- 9.2% (13.1)
- 9.4% (12.9)
- 9.6% (13.7)
- 1.6% (9.6)
- 1.8% (8.8)
- Placebo \*
- -0.9% (10.7)
- -4.4% (11.3)
- 0.3% (9.9)
- 0.5% (10.5)
- 0.7% (9.6)
- -3.8% (13.5)
- Arikace 280
- Placebo
- Arikace 560
- P=0.009
- P=0.019
- P=0.124
- P=0.021
- \* Mean (SD)

23
ARIKACE TR02-05
PFT: Prior Use of Inhalation Antibiotic Arikace
( N = 8 )
Placebo
( N = 4 )
Day 28

```
10 %
-5 %
Day 56
5 %
-1 %
Relative Change FEV
1
(ml)
```

24 Tobramycin FEV 1 (L) Absolute

ARIKACE TR02-05
By Prior Tobramycin Use
Patients With Prior
Tobramycin Use
Patients Without Prior
Tobramycin Use
Arikace

```
N=5
Placebo
N=3
Arikace
N=16
Placebo
N=8
Day 28
0.326 (0.290)
-0.083 (0.123)
3
0.126 (0.203)
16
-0.016 (0.144)
8
Day 56
0.152 (0.186)
-0.040 (0.284)
0.001 (0.161)
15
-0.120 (0.168)
8
Absolute
Change
from
Baseline
FEV
1
(L)
Cohort I
280 mg
```

ARIKACE TR02-05
By Prior Tobramycin Use
26
\* Mean (SD)
280mg Cohort
Patients without Tobramycin
280mg Cohort
Patients with Tobramycin

Arikace

Placebo

Arikace

Placebo

Visit Day

Visit Day

Arikace \*

326 (290)

152 (186)

Placebo \*

-83 (123)

-40 (284)

Arikace \*

126 (203)

1 (161)

Placebo \*

-16 (144)

-120 (168)

RUN12AUG2008

26

27 Tobramycin FEV 1 (L) Relative

ARIKACE TR02-05
By Prior Tobramycin Use
Patients With Prior
Tobramycin Use
Patients Without Prior
Tobramycin Use
Arikace

```
N=5
Placebo
N=3
Arikace
N = 16
Placebo
N=8
Day 28
0.136 (0.088)
5
-0.052 (0.075)
3
0.091 (0.138)
16
-0.002 (0.067)
8
Day 56
0.051 (0.093)
-0.010 (0.148)
0.009 (0.084)
15
-0.053 (0.083)
* Mean (SD)
Relative
Change
from
Baseline
FEV
1
(L)
RUN12AUG2008
Cohort I
280 mg
```

29
ARIKACE TR02-05
By Prior Tobramycin Use
\* Mean (SD)
RUN12AUG2008
280mg Cohort
Patients without Tobramycin
280mg Cohort

### Patients with Tobramycin

Arikace

Placebo

Arikace

Placebo

Visit Day

Visit Day

Arikace \*

13.6% (8.8)

5.1% (9.3)

Placebo \*

-5.2% (7.5)

-1.0% (14.8)

Arikace \*

9.1% (13.8)

0.9% (8.4)

Placebo \*

-0.2% (6.7)

-5.3% (8.3)

30
Arikace
Efficacy in Patients with Prior Tobramycin Use:
TR02-106
Mean
Change in Log
10

#### **CFU**

Subjects with 5-6 Cycles of TOBI in

prior 12 months

Change in FEV<sub>1</sub>

(ml)

Subjects with 5-6 Cycles of TOBI in

prior 12 months

Placebo

Visit Day

Visit Day

Arikace 560

90 (220)

90 (30)

230 (60)

90 (90)

Placebo

-140 (210)

-110 (350)

-200 (20)

-290 (10)

Arikace 560

Arikace 560

-1.99

(0.70)

-1.26

(0.86)

-0.93

(1.19)

-1.43

(0.89)

-0.27

(0.44)

Placebo

Tacci

0.15

0.03 -0.55

-0.29

0.08

Placebo

Arikace 560

Mean

-3

-2

-1

0

1

2

3

7

-300

-250

-200

-150

-100 -50

Insmed has filed a registration statement (including a prospectus) with the Securities and Exchange Commission (the SEC) for the offering to which this communication relates. Before you invest, you should read the prospectus in that registration statement and other documents Insmed has filed with the SEC for more complete information about Insmed and this offering. You may get these documents for free by visiting EDGAR on the SEC web site at

www.sec.gov.

Alternatively,
Insmed
will
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to
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you
a
copy
of
the
prospectus
if
you request it by calling Insmed s corporate secretary at: (732) 997-4600.