UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): October 2, 2019

PIERIS PHARMACEUTICALS, INC.
(Exact Name of Registrant as Specified in its Charter)

Nevada	**001-37471**	**EIN 30-0784346**
(State or other jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

225 State Street, 9th Floor
Boston, MA **02109**

(Address of principal executive offices) **(Zip Code)**

Registrant's telephone number, including area code: 857-246-8998
N/A
(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value per share	**PIRS**	**The Nasdaq Capital Market**

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (17 CFR §230.405) or Rule 12b-2 of the Securities Exchange Act of 1934 (17 CFR §240.12b-2).

Emerging Growth Company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 7.01: Regulation FD Disclosure.

On October 2, 2019, Pieris Pharmaceuticals, Inc. presented its phase 1 single ascending dose study of PRS-060 entitled *Phase 1 evaluation of the inhaled IL-4Ra antagonist, AZD1402/PRS-060, a potent and selective blocker of IL-4Ra*. The presentation is furnished as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference.

The information set forth under this "Item 7.01. Regulation FD Disclosure," including Exhibit 99.1 attached hereto, shall not be deemed "filed" for any purpose, and shall not be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, regardless of any general incorporation language in any such filing. except as shall be expressly set forth by specific reference in such filing.

Item 9.01 Financial Statements and Exhibits

(d) *Exhibits.*

99.1 PRS-060 Single Ascending Dose Study Presentation, Dated October 2, 2019.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

PIERIS PHARMACEUTICALS, INC.

Dated: October 2, 2019

/s/ Tom Bures

Tom Bures

Vice President, Finance

ERS

INTERNATIONAL CONGRESS 2019

MADRID Spain, 28 September – 2 October

Phase 1 evaluation of the inhaled IL-4Rα antagonist, AZD1402/PRS-060, a potent and selective blocker of IL-4Rα
Abstract: OA5336

Bruns IB,[1] Fitzgerald MF,[1] Pardali K,[2] Gardiner P,[3] Keeling DJ,[2] Axelsson LT,[2] Jiang F,[2] Lickliter J,[4] Close DR[5]

[1]Pieris Pharmaceuticals, Boston, MA, USA; [2]Early Research and Development, Respiratory, Inflammation and Autoimmune, BioPharmaceuticals R&D, AstraZeneca, Gothenburg, Sweden; [3]Clinical Pharmacology and Safety Sciences, BioPharmaceuticals R&D, AstraZeneca, Gothenburg, Sweden; [4]Nucleus Network, Melbourne, Australia; [5]Early Research and Development, Respiratory, Inflammation and Autoimmune, BioPharmaceuticals R&D, AstraZeneca, Cambridge, UK

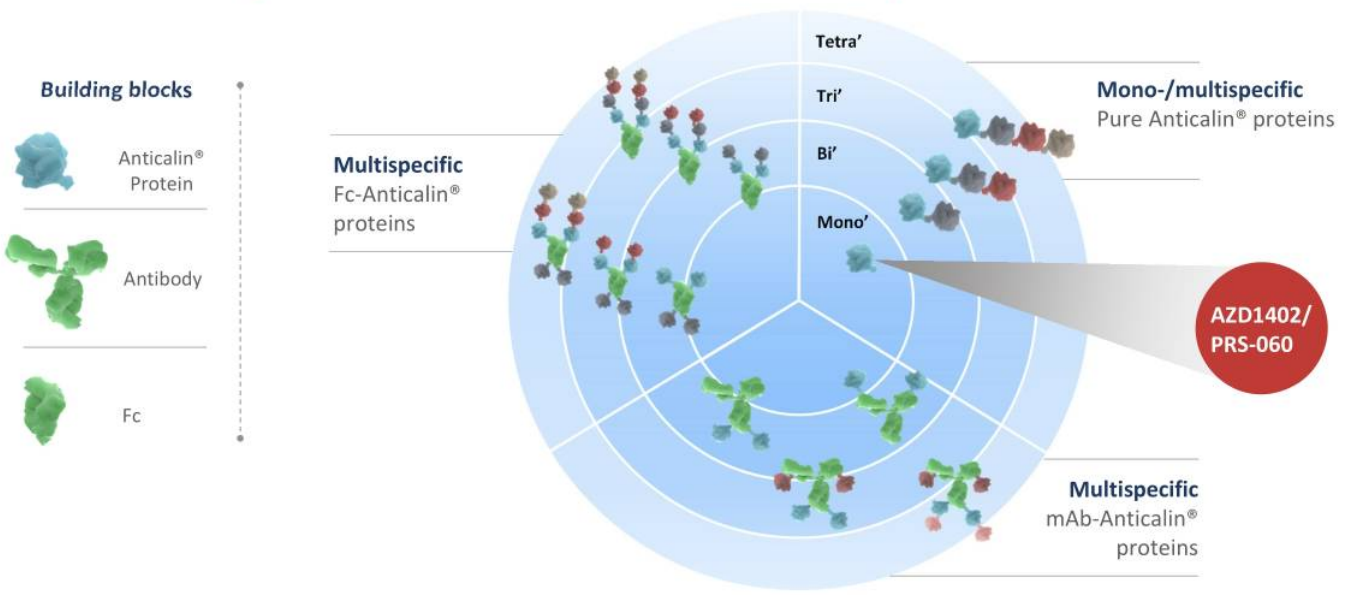
Conflict of interest disclosure

❑ **I have no real or perceived conflicts of interest that relate to this presentation.**

✓ **I have the following real or perceived conflicts of interest that relate to this presentation:**

Affiliation / Financial interest	Commercial Company
Grants/research support:	• This study was sponsored by Pieris Pharmaceuticals and funded by AstraZeneca • Lickliter J is an employee of Nucleus Network; AstraZeneca provided funding to Nucleus Network for conducting this study
Honoraria or consultation fees:	• Fitzgerald MF is a consultant of Pieris Pharmaceuticals
Participation in a company sponsored bureau:	
Stock shareholder:	• Bruns IB is a paid employee and shareholder of Pieris Pharmaceuticals • Fitzgerald MF is a shareholder of Pieris Pharmaceuticals • Pardali K, Gardiner P, Keeling DJ, Axelsson LT, Jiang F and Close DR are employees of AstraZeneca, and may c stock or stock options
Spouse / partner:	
Other support / potential conflict of interest:	

Anticalin® proteins – a new class of biopharmaceuticals



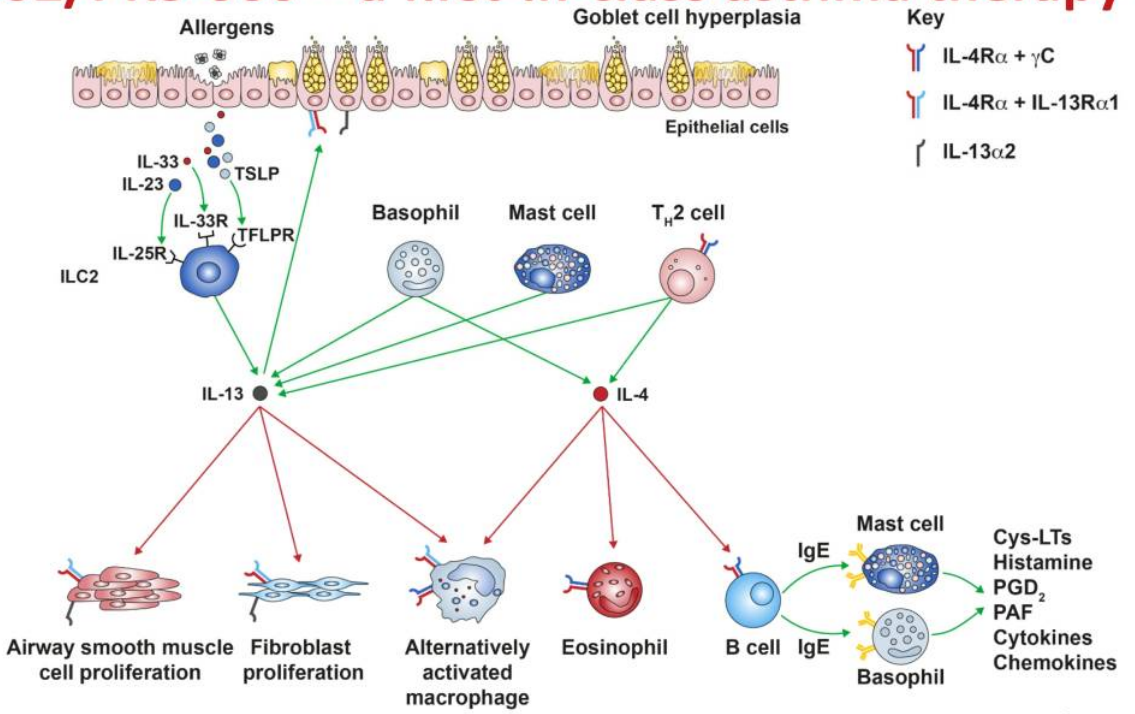
Potent multi-target engagement • Novel inhaled and multispecific MoA • Favorable drug-like properties

Adapted from Rothe C, Skerra A[1]

Fc, fragment crystallizable; mAb, monoclonal antibody; MoA, mechanism of action

1. Rothe C, Skerra A. *BioDrugs* 2018;32:233–43

AZD1402/PRS-060 – a first-in-class asthma therapy



Adapted from Bagnasco D *et al*. 2016[1]

IL, interleukin; IL-4Rα, IL-4 receptor α

1. Bagnasco D *et al. Intl Arch Allerg Immunol* 2016;170:122–31

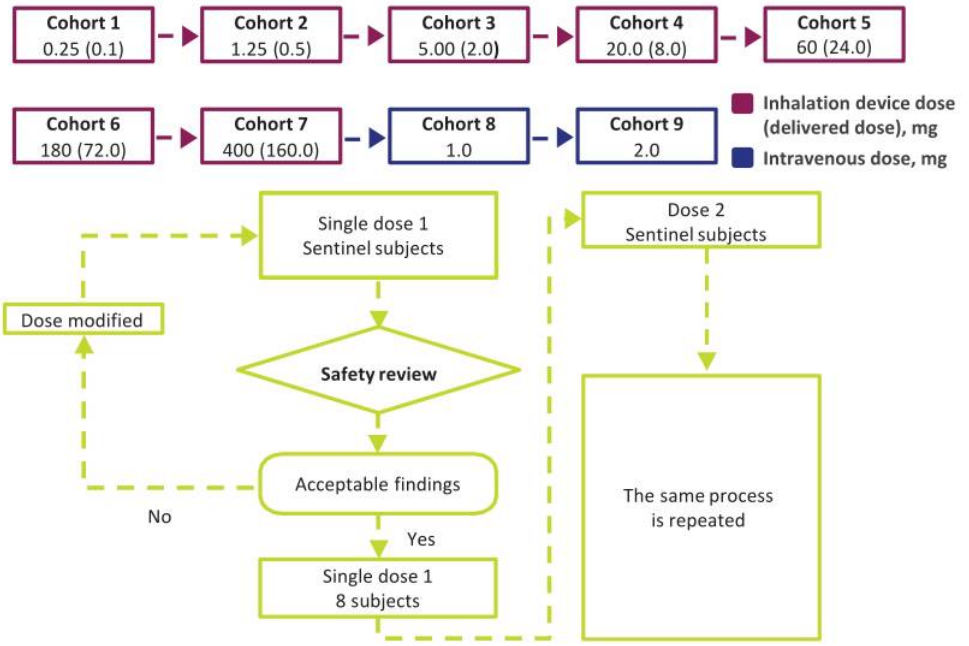
AZD1402/PRS-060 – a first-in-class asthma therapy

- Despite the availability of standard-of-care therapies, disease control is not achieved in 5–10% of patients with asthma[1]
- Type 2 cytokines **IL-4** and **IL-13** signal through **IL-4Rα**, and play crucial roles in asthma pathogenesis[2–4]
- **AZD1402/PRS-060** is a tear lipocalin-derived Anticalin protein antagonist of **IL-4Rα** that is being developed as an inhaled treatment for **moderate-to-severe asthma**
- This presentation details the results of **a phase 1, single-blind, randomized, first-in-human dose-escalation study of AZD1402/PRS-060** in healthy volunteers (NCT03384290)

IL, interleukin; IL-4Rα, IL-4 receptor α

1. Murphy AC *et al. Thorax* 2012;67:751–53; 2. Voehringer D *et al. J Exp Med* 2006;203:1435–46; 3. Locksley RM. *Cell* 2010;140:777–83; 4. Wenzel S *et al. Lancet* 2016;388:31–44

NCT03384290 – study design and subject disposition



Study endpoints

Safety

PK

- Serial blood samples were drawn (up to 48 hou after administration of each dose)
- Standard PK parameters were derived for evalu

PD to establish systemic target engagement

- Blood was drawn from subjects after dosing wi inhaled AZD1402/PRS-060 or placebo, and was stimulated with IL-4 10 ng/mL for 15 minutes
- pSTAT6 was assessed by FACS in the CD3+ T-cell subpopulation

Study population

- 72 healthy volunteers were enrolled
- 54 received AZD1402/PRS-060
- 18 received placebo
- Sex: 100% male
- Mean age: 26.4 years
- Mean BMI: 24.5 kg/m^2

BMI, body mass index; FACS, fluorescence-activated cell sorting; IL, interleukin; PD, pharmacodynamic; PK, pharmacokinetic; pSTAT6, phosphorylated signal transducer and activator of transcription

AZD1402/PRS-060 was well tolerated after intravenous and inhaled administration

- Single inhaled doses and single intravenous doses of AZD1402/PRS-060 were well tolerated
  - Twenty-five subjects (35%) experienced 28 TEAEs
  - Most TEAEs (80%) were mild and no subjects reported severe TEAEs
- No clinically significant abnormalities or change from baseline in hematology,[a] clinical chemistry laboratory results, urinalysis results, vital signs or 12-lead electrocardiogram values were noted in any subjects
- No notable changes in pulmonary function parameters were observed in any of the subjects

Exploratory analysis

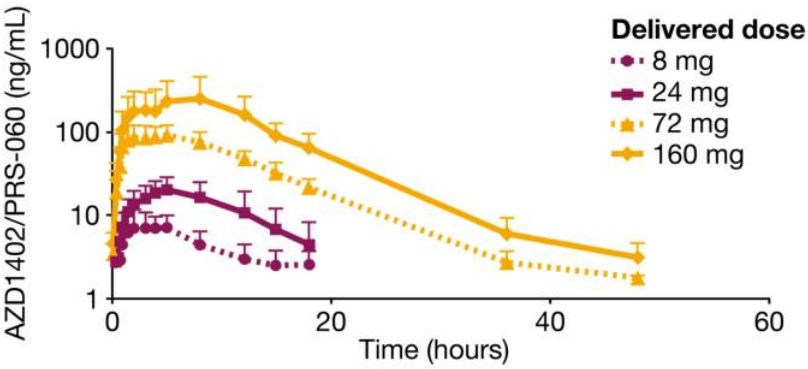
- There was no significant taste or smell associated with the study drug or placebo

System organ class Preferred term[b]	Placebo (n = 18) n (%) m	AZD1402/PRS-060 (n = 54) n (%) m	Over (N = n (%
Subjects with TEAEs	6 (33) 8	19 (35) 20	25 (35
Nervous system disorders	1 (6) 1	5 (9) 6	6 (8
Headache	1 (6) 1	5 (9) 5	6 (8
Somnolence	0	1 (2) 1	1 (1
Infections and infestations	2 (11) 2	5 (9) 5	7 (10
URTI	2 (11) 2	3 (6) 3	5 (7
Respiratory tract infection	0	1 (2) 1	1 (1
Tonsillitis	0	1 (2) 1	1 (1
Respiratory, thoracic and mediastinal disorders	2 (11) 2	3 (6) 3	5 (7
Dry throat	0	2 (4) 2	2 (3
Pleuritic pain	0	1 (2) 1	1 (1
Throat irritation	2 (11) 2	0	2 (3
General disorders	1 (6) 1	2 (4) 2	3 (4
Fatigue	0	1 (2) 1	1 (1
Influenza-like illness	0	1 (2) 1	1 (1
Gastrointestinal disorders	0	1 (2) 1	1 (1
Nausea	0	1 (2) 1	1 (1

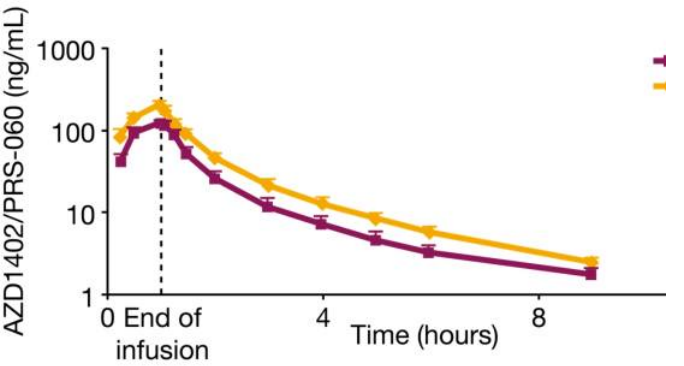
[a]The laboratory tests analyzed hemoglobin, hematocrit, red blood cells, platelets, white blood cells, neutrophils, lymphocytes, eosinophils, basophils and monocytes
[b]MedDRA 20.1
m, number of events, n, number of subjects in the specified category; TEAE, treatment-emergent adverse event; URTI, upper respiratory tract infection

AZD1402/PRS-060 was absorbed after inhalation resulting in dose-dependent increases in C_{max} and AUC_{inf}

Serum PK profile of AZD1402/PRS-060 after inhalation



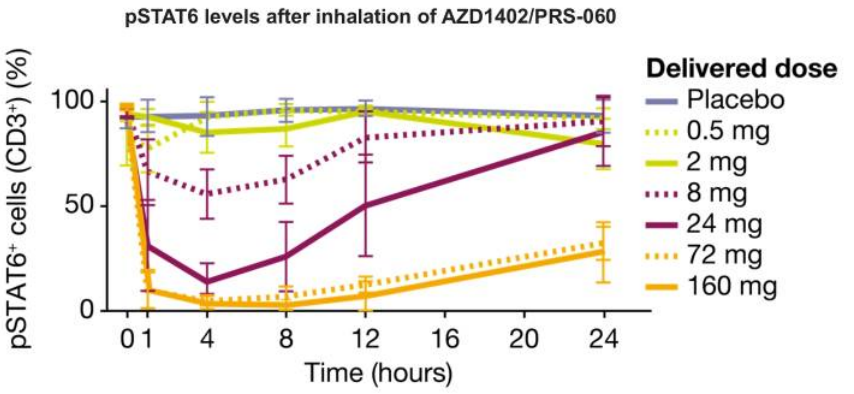
Serum PK profile of AZD1402/PRS-060 after intravenous infus

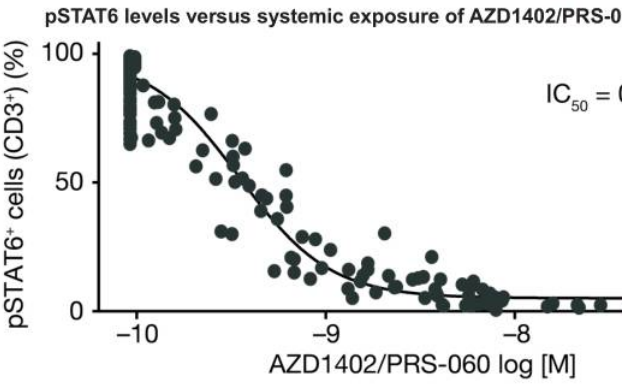


- After intravenous infusion, AZD1402/PRS-060 had a terminal $t_{½}$ of 2 hours, clearance of 6 L/hour an volume of distribution of 9 L, consistent with limited tissue distribution and clearance via renal filtration
- A longer t½ observed after inhalation (4.1–6.2 hours) than after intravenous infusion (2.2–2.3 hours indicated involvement of an absorption lag time
- There were no confirmed positive anti-AZD1402/PRS-060 antibodies in any of the dose groups

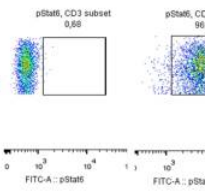
AUC_{inf}, area under the serum concentration time curve from time 0 to infinity; C_{max}, maximum observed serum concentration; PK, pharmacokinetics; $t_{½}$, terminal half-life

Inhaled AZD1402/PRS-060 shows systemic target engagement correlating with serum exposure





- Inhibition of pSTAT6 was observed from cohort 4 onwards (delivered dose 8 mg)
- Inhibition of systemic pSTAT6 was dose-dependent and aligned with systemic levels of AZD1402/PRS
- Near complete and sustained inhibition was observed at higher inhaled doses



FACS, fluorescence-activated cell sorting; IC_{50}, half maximal inhibitory concentration; pSTAT6, phosphorylated signal transducer and activator of transcription 6

Conclusions

- The novel IL-4Rα antagonist AZD1402/PRS-060 was well tolerated when given as single inhaled or intravenous doses to healthy volunteers
- The overall profile of AZD1402/PRS-060 supports its further development as an inhaled drug for the treatment of asthma
- Systemic target engagement (pSTAT6) will be compared with local lung target engagement in the ongoing, multiple ascending dose study in patients with mild asthma (NCT03574805)
  - This study determined the local lung effects and dose relationship by measuring FeNO, a validated biomarker of asthma
    - Results presented on Tuesday October 1: ***Multiple ascending dose study of the inhaled IL-4Rα antagonist, AZD1402/PRS-060, in mild asthmatics demonstrates robust FeNO reduction and a promising clinical profile for the treatment of asthma (poster number: PA3709)***
- The outcome of this study will help to determine the inhaled dose levels for evaluation in future studies of this first-in-class, inhaled anticalin molecule

PRS-060 protein structure

FeNO, fractional concentration of exhaled nitric oxide; IL-4Rα, IL-4 receptor α; pSTAT6, phosphorylated signal transducer and activator of transcription 6

Acknowledgments

Pieris Pharmaceuticals

- Kayti Aviano
- Jen Tsung
- George Mensing
- All the phase 1 site staff at Nucleus Network (Melbourne, Australia)

360BioLabs

- Deidre Cournane
- Jonathan Ferrand
- Melinda Pryor

AstraZeneca

- AstraZeneca and Pieris Pharmaceuticals thank the volunteers and site staff who participated in this study
- Medical writing support was provided by Kelly Soady, PhD, of PharmaGenesis London, London UK, with funding from AstraZeneca

Back-up slides

Doses of AZD1402/PRS-060

Cohort	Inhalation device doses (delivered doses), mg
1	0.25 (0.1)
2	1.25 (0.5)
3	5.00 (2.0)
4	20.0 (8.0)
5	60 (24.0)
6	180 (72.0)
7	400 (160.0)
	Intravenous doses, mg
8	1.0
9	2.0

Serum PK parameters after AZD1402/PRS-060 inhalation at the delivered dose for cohorts 4–7 (PK population) and after intravenous administration for cohorts 8 and 9

Parameter	Inhalation dose				Intravenous dose	
	Cohort 4 8 mg (n = 6)	Cohort 5 24 mg (n = 6)	Cohort 6 72 mg (n = 6)	Cohort 7 160 mg (n = 6)	Cohort 8 1 mg (n = 6)	Cohort 9 2 mg (n = 5)
AUC_{inf}, h.ng/mL	87.2 (27.8)[a]	261.5 (125.6)[b]	1252.1 (398.9)	3446.0 (2314.9)	187.3 (32.5)	311.6 (23.1)
C_{max}, ng/mL	8.3 (4.8)	21.2 (9.8)	93.0 (33.8)	266.8 (232.5)	123.3 (13.1)	201.5 (9.0)
MRT, h	7.8 (2.9)[a]	8.9 (2.1)[b]	10.9 (1.6)	11.5 (1.3)	1.4 (0.2)	1.5 (0.1)
T_{max}, h (min, max)	4.6 (2.1, 5.1)	4.7 (4.1, 8.2)	4.6 (1.7, 8.1)	8.2 (1.7, 8.3)	1.0 (0.97, 1.1)	1.0 (0.97, 1.0)
$t_{½}$, h	4.2 (1.7)[a]	4.1 (0.9)[b]	6.2 (0.7)	6.0 (0.7)	2.2 (0.75)	2.3 (0.1)
BA, %	7.0	7.0	11.2	13.8		
CL, L/h					5.5 (0.96)	6.4 (0.5)
V_{ss}, L					7.6 (0.69)	9.7 (0.7)
V_z, L					17.0 (4.0)	21.5 (2.4)

- Urinary excretion of unchanged AZD1402/PRS-060 was not detected after intravenous administration or inhalation, except in three individuals in the high-dose inhalation cohorts
- There were no confirmed positive anti-AZD1402/PRS-060 antibodies in any of the dose groups

[a]n = 2; [b]n = 5

AUC_{inf}, area under the serum concentration time curve from time 0 to infinity; BA, bioavailability; CL, clearance; C_{max}, maximum observed serum concentration; h, hour; max, maximum; min, minimu
MRT, mean residence time; PK, pharmacokinetic; $t_{½}$, terminal half-life; T_{max}, time to maximum serum concentration; V_{ss}, volume of distribution at steady state; V_z, volume of distribution at terminal p

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