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Trial record **1 of 1** for: CQAB149B2351

Previous Study | Return to List | Next Study

Efficacy and Safety of Indacaterol Plus Tiotropium Versus Tiotropium Alone in Patients With Chronic Obstructive Pulmonary Disease (INTRUST2)

This study has been completed.

Sponsor:
Novartis Pharmaceuticals

Information provided by (Responsible Party):
Novartis (Novartis Pharmaceuticals)

ClinicalTrials.gov Identifier:
NCT00877383

First received: April 6, 2009
Last updated: August 23, 2011
Last verified: August 2011
History of Changes

Full Text View | Tabular View | Study Results | Disclaimer | How to Read a Study Record

Results First Received: July 22, 2011

Study Type:	Interventional
Study Design:	Allocation: Randomized; Intervention Model: Parallel Assignment; Masking: Double Blind (Subject, Caregiver, Investigator, Outcomes Assessor); Primary Purpose: Treatment
Condition:	Chronic Obstructive Pulmonary Disease (COPD)
Interventions:	Drug: Indacaterol 150 µg Drug: Tiotropium 18 µg Drug: Placebo to indacaterol

Participant Flow

Hide Participant Flow

Recruitment Details

Key information relevant to the recruitment process for the overall study, such as dates of the recruitment period and locations
No text entered.

Pre-Assignment Details

Significant events and approaches for the overall study following participant enrollment, but prior to group assignment
No text entered.

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Participant Flow: Overall Study

	Indacaterol 150 µg and Tiotropium 18 µg	Tiotropium 18 µg
STARTED	**572**	**570**

COMPLETED	**543**	**533**
NOT COMPLETED	**29**	**37**
Adverse Event	**13**	**14**
Lost to Follow-up	**5**	**3**
Subject withdrew consent	**3**	**12**
Subject no longer requires study drug	**2**	**0**
Administrative problems	**2**	**0**
Protocol deviation	**2**	**6**
Unsatisfactory therapeutic effect	**1**	**0**
Death	**1**	**2**

Baseline Characteristics

Hide Baseline Characteristics

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
No text entered.

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue

	use throughout the study.
Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
Total	Total of all reporting groups

Baseline Measures

	Indacaterol 150 µg and Tiotropium 18 µg	Tiotropium 18 µg	Total
Number of Participants [units: participants]	**572**	**570**	**1142**
Age [units: years] Mean (Standard Deviation)	**63.1 (8.83)**	**62.8 (8.98)**	**62.9 (8.90)**
Gender [units: participants]			
Female	**212**	**183**	**395**
Male	**360**	**387**	**747**

Outcome Measures

Hide All Outcome Measures

1. Primary: Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose at the End of the Study (Week 12, Day 84) [Time Frame: From 5 minutes to 8 hours post-dose at the end of the study (Week 12, Day 84)]

Measure Type	Primary

Measure Title	Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose at the End of the Study (Week 12, Day 84)
Measure Description	FEV1 was measured with spirometry conducted according to internationally accepted standards. Measurements were made at 5 and 30 minutes; and 1, 2, 3, 4, 6, and 8 hours post-dose at the end of the study (Week 12, Day 84). The standardized AUC FEV1 was calculated as the sum of trapezoids divided by the length of time. The analysis included baseline FEV1, FEV1 pre-dose and 10-15 minutes post-dose of salbutamol/albuterol during screening, and FEV1 pre-dose and 1 hour post-dose of ipratropium during screening as covariates.
Time Frame	From 5 minutes to 8 hours post-dose at the end of the study (Week 12, Day 84)
Safety Issue	No

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Full analysis set (FAS): All randomized patients who received at least 1 dose of study drug, last observation carried forward (LOCF).

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Measured Values

	Indacaterol 150 µg and Tiotropium 18 µg	Tiotropium 18 µg
Number of Participants Analyzed [units: participants]	**530**	**504**
Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose at the End of the Study (Week 12, Day 84) [units: Liters] Least Squares Mean (Standard Error)	**1.46 (0.011)**	**1.34 (0.011)**

No statistical analysis provided for Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose at the End of the Study (Week 12, Day 84)

2. Secondary: Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose at the End of the Study (Week 12 + 1 Day, Day 85) [Time Frame: End of the study (Week 12 + 1 day, Day 85)]

Measure Type	Secondary
Measure Title	Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose at the End of the Study (Week 12 + 1 Day, Day 85)
Measure Description	FEV1 was measured with spirometry conducted according to internationally accepted standards. Trough FEV1 was defined as the average of measurements made 23 hours 10 minutes and 23 hours 45 minutes post-dose at the end of the study. The analysis included baseline FEV1, FEV1 pre-dose and 10-15 minutes post-dose of salbutamol/albuterol during screening, and FEV1 pre-dose and 1 hour post-dose of ipratropium during screening as covariates.
Time Frame	End of the study (Week 12 + 1 day, Day 85)
Safety Issue	No

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.

Full analysis set (FAS): All randomized patients who received at least 1 dose of study drug, last observation carried forward (LOCF).

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Measured Values

	Indacaterol 150 µg and Tiotropium 18 µg	Tiotropium 18 µg
Number of Participants Analyzed [units: participants]	**565**	**564**
Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose at the End of the Study (Week 12 + 1 Day, Day 85) [units: Liters] Least Squares Mean (Standard Error)	**1.34 (0.010)**	**1.27 (0.010)**

No statistical analysis provided for Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose at the End of the Study (Week 12 + 1 Day, Day 85)

3. Secondary: Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose on Day 1 [Time Frame: From 5 minutes to 8 hours post-dose on Day 1]

Measure Type	Secondary
Measure Title	Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose on Day 1
Measure Description	FEV1 was measured with spirometry conducted according to internationally accepted standards. Measurements were made at 5 and 30 minutes; and 1, 2, 3, 4, 6, and 8 hours post-dose on Day 1. The standardized AUC FEV1 was calculated as the sum of trapezoids divided by the length of time. The analysis included baseline FEV1, FEV1 pre-dose and 10-15 minutes post-dose of salbutamol/albuterol during screening, and FEV1 pre-dose and 1 hour post-dose of ipratropium during screening as covariates.
Time Frame	From 5 minutes to 8 hours post-dose on Day 1
Safety Issue	No

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Full analysis set (FAS): All randomized patients who received at least 1 dose of study drug, last observation carried forward (LOCF).

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the

	manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Measured Values

	Indacaterol 150 µg and Tiotropium 18 µg	Tiotropium 18 µg
Number of Participants Analyzed [units: participants]	**551**	**540**
Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose on Day 1 [units: Liters] Least Squares Mean (Standard Error)	**1.40 (0.007)**	**1.33 (0.007)**

No statistical analysis provided for Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 8 Hours Post-dose on Day 1

4. Secondary: Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose on Day 2 [Time Frame: 24 hours post-dose on Day 2]

Measure Type	Secondary
Measure Title	Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose on Day 2
Measure Description	FEV1 was measured with spirometry conducted according to internationally accepted standards. Trough FEV1 was defined as the average of measurements made 23 hours 10 minutes and 23 hours 45 minutes post-dose on Day 2. The analysis included baseline FEV1, FEV1 pre-dose and 10-15 minutes post-dose of salbutamol/albuterol during screening, and FEV1 pre-dose and 1 hour post-dose of ipratropium during screening as covariates.
Time Frame	24 hours post-dose on Day 2
Safety Issue	No

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Full analysis set (FAS): All randomized patients who received at least 1 dose of study drug, last observation carried forward (LOCF).

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Measured Values

	Indacaterol 150 µg and Tiotropium 18 µg	**Tiotropium 18 µg**
Number of Participants Analyzed [units: participants]	**563**	**558**
Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose on Day 2 [units: Liters] Least Squares Mean (Standard Error)	**1.34 (0.008)**	**1.26 (0.008)**

No statistical analysis provided for Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose on Day 2

5. Secondary: Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose on Day 1 [Time Frame: From 5 minutes to 4 hours post-dose on Day 1]

Measure Type	Secondary
Measure Title	Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose on Day 1
Measure Description	FEV1 was measured with spirometry conducted according to internationally accepted standards. Measurements were made at 5 and 30 minutes; and 1, 2, 3, and 4 hours post-dose on Day 1. The standardized AUC FEV1 was calculated as the sum of trapezoids divided by the length of time. The analysis included baseline FEV1, FEV1 pre-dose and 10-15 minutes post-dose of salbutamol/albuterol during screening, and FEV1 pre-dose and 1 hour post-dose of ipratropium during screening as covariates.
Time Frame	From 5 minutes to 4 hours post-dose on Day 1
Safety Issue	No

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Full analysis set (FAS): All randomized patients who received at least 1 dose of study drug, last observation carried forward (LOCF).

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Measured Values

	Indacaterol 150 µg and Tiotropium 18 µg	**Tiotropium 18 µg**
Number of Participants Analyzed [units: participants]	**556**	**550**
Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose on Day 1 [units: Liters] Least Squares Mean (Standard Error)	**1.38 (0.007)**	**1.32 (0.007)**

No statistical analysis provided for Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose on Day 1

6. Secondary: Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose at the End of the Study (Week 12, Day 84) [Time Frame: From 5 minutes to 4 hours post-dose at the end of the study (Week 12, Day 84)]

Measure Type	Secondary
Measure Title	Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose at the End of the Study (Week 12, Day 84)
Measure Description	FEV1 was measured with spirometry conducted according to internationally accepted standards. Measurements were made at 5 and 30 minutes; and 1, 2, 3, and 4 hours post-dose at the end of the study (Week 12, Day 84). The standardized AUC FEV1 was calculated as the sum of trapezoids divided by the length of time. The analysis included

	baseline FEV1, FEV1 pre-dose and 10-15 minutes post-dose of salbutamol/albuterol during screening, and FEV1 pre-dose and 1 hour post-dose of ipratropium during screening as covariates.
Time Frame	From 5 minutes to 4 hours post-dose at the end of the study (Week 12, Day 84)
Safety Issue	No

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Full analysis set (FAS): All randomized patients who received at least 1 dose of study drug, last observation carried forward (LOCF).

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
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Measured Values

	Indacaterol 150 µg and Tiotropium 18 µg	**Tiotropium 18 µg**
Number of Participants Analyzed [units: participants]	**532**	**511**

Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose at the End of the Study (Week 12, Day 84) [units: Liters] Least Squares Mean (Standard Error)	**1.48 (0.011)**	**1.34 (0.011)**

No statistical analysis provided for Forced Expiratory Volume in 1 Second (FEV1) Standardized (With Respect to Length of Time) Area Under the Curve (AUC) From 5 Minutes to 4 Hours Post-dose at the End of the Study (Week 12, Day 84)

Serious Adverse Events

Hide Serious Adverse Events

Time Frame	Baseline to the end of the study (Week 12)
Additional Description	Safety population: All patients who received at least 1 dose of study drug.

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
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Serious Adverse Events

	Indacaterol 150 µg and Tiotropium 18 µg	Tiotropium 18 µg
Total, serious adverse events		
# participants affected / at risk	**19/572 (3.32%)**	**18/570 (3.16%)**
Cardiac disorders		
Acute myocardial infarction † [1]		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Cardiac arrest † [1]		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Hypertensive heart disease † [1]		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Myocardial infarction † [1]		
# participants affected / at risk	**1/572 (0.17%)**	**1/570 (0.18%)**
Myocardial ischaemia † [1]		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Gastrointestinal disorders		
Colonic polyp † [1]		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Intestinal obstruction † [1]		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Oesophageal spasm † [1]		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Rectal haemorrhage † [1]		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Small intestinal obstruction † [1]		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**

General disorders		
Sudden death † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Hepatobiliary disorders		
Hepatic cirrhosis † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Infections and infestations		
Bronchitis † 1		
# participants affected / at risk	**1/572 (0.17%)**	**1/570 (0.18%)**
Lower respiratory tract infection † 1		
# participants affected / at risk	**2/572 (0.35%)**	**1/570 (0.18%)**
Lower respiratory tract infection bacterial † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Pneumonia † 1		
# participants affected / at risk	**4/572 (0.70%)**	**0/570 (0.00%)**
Respiratory tract infection † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Upper respiratory tract infection † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Upper respiratory tract infection bacterial † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Injury, poisoning and procedural complications		
Fractured coccyx † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**

Post procedural myocardial infarction † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Metabolism and nutrition disorders		
Hyperglycaemia † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Neoplasms benign, malignant and unspecified (incl cysts and polyps)		
Lung squamous cell carcinoma stage unspecified † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Nervous system disorders		
Cerebrovascular accident † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Syncope † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Transient ischaemic attack † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Renal and urinary disorders		
Nephrolithiasis † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Respiratory, thoracic and mediastinal disorders		
Acute respiratory failure † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Chronic obstructive pulmonary disease † 1		
# participants affected / at risk	**9/572 (1.57%)**	**9/570 (1.58%)**
Hypoxia † 1		

# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Pleural effusion † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Pneumonitis † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Skin and subcutaneous tissue disorders		
Skin ulcer † 1		
# participants affected / at risk	**0/572 (0.00%)**	**1/570 (0.18%)**
Vascular disorders		
Aortic aneurysm † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Arteriosclerosis † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**
Hypertension † 1		
# participants affected / at risk	**0/572 (0.00%)**	**2/570 (0.35%)**
Hypotension † 1		
# participants affected / at risk	**1/572 (0.17%)**	**0/570 (0.00%)**

† Events were collected by systematic assessment
1 Term from vocabulary, MedDRA

Other Adverse Events

Hide Other Adverse Events

Time Frame	Baseline to the end of the study (Week 12)

Additional Description	Safety population: All patients who received at least 1 dose of study drug.

Frequency Threshold

Threshold above which other adverse events are reported	5%

Reporting Groups

	Description
Indacaterol 150 µg and Tiotropium 18 µg	Patients inhaled indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.
Tiotropium 18 µg	Patients inhaled placebo to indacaterol 150 µg and tiotropium 18 µg once daily in the morning between 8:00 AM and 11:00 AM for 12 weeks. Placebo to indacaterol was delivered blinded via a single-dose dry-powder inhaler (SDDPI). Tiotropium was delivered open-label via the manufacturer's proprietary inhalation device (HandiHaler®). Daily inhaled corticosteroid treatment (if applicable) was to remain stable throughout the study. The short-acting β2-agonist salbutamol/albuterol was available for rescue use throughout the study.

Other Adverse Events

	Indacaterol 150 µg and Tiotropium 18 µg	**Tiotropium 18 µg**
Total, other (not including serious) adverse events		
# participants affected / at risk	**83/572 (14.51%)**	**70/570 (12.28%)**
Respiratory, thoracic and mediastinal disorders		
Chronic obstructive pulmonary disease † [1]		
# participants affected / at risk	**38/572 (6.64%)**	**52/570 (9.12%)**
Cough † [1]		
# participants affected / at risk	**52/572 (9.09%)**	**25/570 (4.39%)**

† Events were collected by systematic assessment
1 Term from vocabulary, MedDRA

Limitations and Caveats

Hide Limitations and Caveats

Limitations of the study, such as early termination leading to small numbers of participants analyzed and technical problems with measurement leading to unreliable or uninterpretable data
No text entered.

More Information

Hide More Information

Certain Agreements:

Principal Investigators are **NOT** employed by the organization sponsoring the study.
There **IS** an agreement between Principal Investigators and the Sponsor (or its agents) that restricts the PI's rights to discuss or publish trial results after the trial is completed.
The agreement is: ☐ The only disclosure restriction on the PI is that the sponsor can review results communications prior to public release and can embargo communications regarding trial results for a period that is **less than or equal to 60 days**. The sponsor cannot require changes to the communication and cannot extend the embargo. ☐ The only disclosure restriction on the PI is that the sponsor can review results communications prior to public release and can embargo communications regarding trial results for a period that is **more than 60 days but less than or equal to 180 days**. The sponsor cannot require changes to the communication and cannot extend the embargo. Other disclosure agreement that restricts the right of the PI to discuss or publish trial results after the trial is completed. ☑ **Restriction Description:** The terms and conditions of Novartis' agreements with its investigators may vary. However, Novartis does not prohibit any investigator from publishing. Any publications from a single-site are postponed until the publication of the pooled data (ie, data from all sites) in the clinical trial.

Results Point of Contact:

Name/Title: Study Director
Organization: Novartis Pharmaceuticals
phone: 862 778-8300

No publications provided by Novartis

Publications automatically indexed to this study:

Mahler DA, D'Urzo A, Bateman ED, Ozkan SA, White T, Peckitt C, Lassen C, Kramer B; INTRUST-1 and INTRUST-2 study investigators. Concurrent use of indacaterol plus tiotropium in patients with COPD provides superior bronchodilation compared with tiotropium alone: a randomised, double-blind comparison. Thorax. 2012 Sep;67(9):781-8. Epub 2012 Apr 27.

Responsible Party:	Novartis (Novartis Pharmaceuticals)
ClinicalTrials.gov Identifier:	NCT00877383 History of Changes
Other Study ID Numbers:	**CQAB149B2351**
Study First Received:	April 6, 2009
Results First Received:	July 22, 2011
Last Updated:	August 23, 2011
Health Authority:	United States: Food and Drug Administration Netherlands: The Central Committee on Research Involving Human Subjects (CCMO) Slovakia: State Institute for Drug Control Canada: Health Canada Czech Republic: State Institute for Drug Control Hungary: National Institute of Pharmacy Spain: Spanish Agency of Medicines Colombia: INVIMA Instituto Nacional de Vigilancia de Medicamentos y Alimentos India: Drugs Controller General of India