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Trial record **1 of 1** for: CQAB149B2341

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Efficacy and Safety of Indacaterol Plus Tiotropium Versus Tiotropium Alone in Patients With Chronic Obstructive Pulmonary Disease (INTRUST1)

This study has been completed.

Sponsor:
Novartis Pharmaceuticals

Information provided by:
Novartis

ClinicalTrials.gov Identifier:
NCT00846586

First received: February 15, 2009
Last updated: July 22, 2011
Last verified: July 2011
History of Changes

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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	**570**	**564**

Received Study Drug	**570**	**561** [1]
COMPLETED	**531**	**529**
NOT COMPLETED	**39**	**35**
Adverse Event	**20**	**10**
Subject withdrew consent	**8**	**10**
Administrative problems	**5**	**4**
Death	**2**	**0**
Protocol deviation	**2**	**6**
Abnormal test procedure result(s)	**1**	**0**
Lost to Follow-up	**1**	**4**
Unsatisfactory therapeutic effect	**0**	**1**

[1] Three patients were not exposed to study treatment in this group.

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]	**570**	**561**	**1131**
Age [1] [units: years] Mean (Standard Deviation)	**64.0 (9.07)**	**63.4 (9.22)**	**63.7 (9.14)**
Gender [units: participants]			
Female	**171**	**183**	**354**
Male	**399**	**378**	**777**

[1] Demographics are reported for the safety set which includes all patients who received at least 1 dose of study drug.

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 Treatment (Week 12) [Time Frame: From 5 minutes to 8 hours post-dose at the end of treatment (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 Treatment (Week 12)
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). Standardized FEV1 AUC was calculated by the trapezoidal rule. 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 treatment (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]	**505**	**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 Treatment (Week 12) [units: Liters] Least Squares Mean (Standard Error)	**1.50 (0.014)**	**1.38 (0.014)**

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 Treatment (Week 12)

2. Secondary: Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose at the End of Treatment (Week 12 + 1 Day, Day 85) [Time Frame: 24 hours post-dose at the end of treatment (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 Treatment (Week 12 + 1 Day, Day 85)
Measure Description	FEV1 was measured with spirometry conducted according to internationally accepted standards. Measurements were made at 23 hours 10 minutes and 23 hours 45 minutes post-dose at the end of the study (Week 12 + 1 day, Day 85). 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 at the end of treatment (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]	**561**	**549**
Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose at the End of Treatment (Week 12 + 1 Day, Day 85) [units: Liters] Least Squares Mean (Standard Error)	**1.38 (0.014)**	**1.30 (0.014)**

No statistical analysis provided for Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose at the End of Treatment (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. Standardized FEV1 AUC was calculated by the trapezoidal rule. 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]	**544**	**523**
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 (0.009)**	**1.32 (0.009)**

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. Measurements were made at 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]	**553**	**541**

Trough Forced Expiratory Volume in 1 Second (FEV1) 24 Hours Post-dose on Day 2 [units: Liters] Least Squares Mean (Standard Error)	**1.36 (0.011)**	**1.27 (0.012)**

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. Standardized FEV1 AUC was calculated by the trapezoidal rule. 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]	**552**	**527**
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 (0.008)**	**1.31 (0.008)**

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 Treatment (Week 12) [Time Frame: From 5 minutes to 4 hours post-dose at the end of treatment (Week 12)]

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 Treatment (Week 12)
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 treatment (Week 12). Standardized FEV1 AUC was calculated by the trapezoidal rule. 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 treatment (Week 12)
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]	**516**	**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 Treatment (Week 12) [units: Liters] Least Squares Mean (Standard Error)	**1.52 (0.013)**	**1.38 (0.013)**

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 Treatment (Week 12)

Serious Adverse Events

Hide Serious Adverse Events

Time Frame	Baseline to the end of the study (Week 12)
Additional Description	Safety set: 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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	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.

Serious Adverse Events

	Indacaterol 150 µg and Tiotropium 18 µg	Tiotropium 18 µg
Total, serious adverse events		
# participants affected / at risk	**21/570 (3.68%)**	**17/561 (3.03%)**
Blood and lymphatic system disorders		
Anaemia † [1]		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Cardiac disorders		
Acute coronary syndrome † [1]		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Acute myocardial infarction † [1]		
# participants affected / at risk	**1/570 (0.18%)**	**1/561 (0.18%)**
Angina pectoris † [1]		
# participants affected / at risk	**2/570 (0.35%)**	**0/561 (0.00%)**
Atrial flutter † [1]		
# participants affected / at risk	**1/570 (0.18%)**	**2/561 (0.36%)**
Cardiac failure † [1]		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Sick sinus syndrome † [1]		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Gastrointestinal disorders		

Abdominal distension † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Small intestinal obstruction † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
General disorders		
Chest pain † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Systemic inflammatory response syndrome † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Hepatobiliary disorders		
Bile duct stone † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Cholangitis † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Immune system disorders		
Anaphylactic reaction † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Infections and infestations		
Bronchitis † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Lobar pneumonia † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Pneumonia † 1		
# participants affected / at risk	**2/570 (0.35%)**	**2/561 (0.36%)**
Upper respiratory tract infection † 1		

# participants affected / at risk	0/570 (0.00%)	1/561 (0.18%)
Upper respiratory tract infection bacterial † [1]		
# participants affected / at risk	2/570 (0.35%)	0/561 (0.00%)
Viral upper respiratory tract infection † [1]		
# participants affected / at risk	0/570 (0.00%)	1/561 (0.18%)
Injury, poisoning and procedural complications		
Hip fracture † [1]		
# participants affected / at risk	1/570 (0.18%)	0/561 (0.00%)
Metabolism and nutrition disorders		
Hyponatraemia † [1]		
# participants affected / at risk	1/570 (0.18%)	0/561 (0.00%)
Musculoskeletal and connective tissue disorders		
Muscle necrosis † [1]		
# participants affected / at risk	0/570 (0.00%)	1/561 (0.18%)
Musculoskeletal pain † [1]		
# participants affected / at risk	1/570 (0.18%)	0/561 (0.00%)
Nervous system disorders		
Dizziness † [1]		
# participants affected / at risk	0/570 (0.00%)	1/561 (0.18%)
Haemorrhagic stroke † [1]		
# participants affected / at risk	1/570 (0.18%)	0/561 (0.00%)
Ischaemic stroke † [1]		
# participants affected / at risk	0/570 (0.00%)	1/561 (0.18%)
Post herpetic neuralgia † [1]		
# participants affected / at risk	1/570 (0.18%)	0/561 (0.00%)

Transient ischaemic attack † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Renal and urinary disorders		
Bladder neck obstruction † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Myoglobinuria † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Renal failure acute † 1		
# participants affected / at risk	**1/570 (0.18%)**	**1/561 (0.18%)**
Residual urine † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Urinary hesitation † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Urinary retention † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Urine flow decreased † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Reproductive system and breast disorders		
Pelvic pain † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Respiratory, thoracic and mediastinal disorders		
Acute respiratory failure † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Chronic obstructive pulmonary disease † 1		
# participants affected / at risk	**6/570 (1.05%)**	**11/561 (1.96%)**

Dysphonia † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Dyspnoea † 1		
# participants affected / at risk	**1/570 (0.18%)**	**1/561 (0.18%)**
Haemoptysis † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Vascular disorders		
Arterial disorder † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Deep vein thrombosis † 1		
# participants affected / at risk	**1/570 (0.18%)**	**0/561 (0.00%)**
Hypertension † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**
Hypotension † 1		
# participants affected / at risk	**0/570 (0.00%)**	**1/561 (0.18%)**

† 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 set: 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	**99/570 (17.37%)**	**69/561 (12.30%)**
Respiratory, thoracic and mediastinal disorders		
Chronic obstructive pulmonary disease † 1		
# participants affected / at risk	**48/570 (8.42%)**	**51/561 (9.09%)**
Cough † 1		
# participants affected / at risk	**59/570 (10.35%)**	**21/561 (3.74%)**

† 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:	External Affairs, Novartis Pharmaceuticals
ClinicalTrials.gov Identifier:	NCT00846586 History of Changes
Other Study ID Numbers:	**CQAB149B2341**
Study First Received:	February 15, 2009
Results First Received:	July 22, 2011
Last Updated:	July 22, 2011
Health Authority:	United States: Food and Drug Administration Denmark: Danish Medicines Agency Spain: Spanish Agency of Medicines Turkey: Ministry of Health Australia: Department of Health and Ageing Therapeutic Goods Administration South Africa: Medicines Control Council Philippines: Bureau of Food and Drugs Colombia: INVIMA Instituto Nacional de Vigilancia de Medicamentos y Alimentos Guatemala: Comisión para la Evaluación de Ensayos Clínicos Ministerio de Salud Pública y Asistencia Social Argentina: Administracion Nacional de Medicamentos, Alimentos y Tecnologia Medica