

## Japan Tobacco Inc. Clinical Development as of February 6, 2017

### <In-house development>

Code (Generic Name)	Potential Indication/Dosage form	Mechanism		Phase	Note
JTZ-951	Anemia associated with chronic kidney disease /Oral	HIF-PHD inhibitor	Increases red blood cells by stimulating production of erythropoietin, an erythropoiesis-stimulating hormone, via inhibition of HIF-PHD.	Phase2(Japan) Phase1(Overseas)	In-house
JTE-052	Autoimmune/allergic diseases /Oral, Topical	JAK inhibitor	Suppresses overactive immune response via inhibition of Janus kinase (JAK) related to immune signal.	Phase2(Japan)	In-house Co-development with Torii
JTE-051	Autoimmune/allergic diseases /Oral	Interleukin-2 inducible T cell kinase inhibitor	Suppresses overactive immune response via inhibition of the signal to activate T cells related to immune response.	Phase2(Overseas)	In-house
JTT-251	Type 2 diabetes mellitus /Oral	PDHK inhibitor	Decreases blood glucose by activation of pyruvate dehydrogenase (PDH) related to carbohydrate metabolism.	Phase1(Overseas)	In-house
JTK-351	HIV infection /Oral	HIV integrase inhibitor	Suppresses blood HIV levels by inhibiting the activity of integrase, an enzyme involved in the replication of HIV.	Phase1(Japan)	In-house
JTE-451	Autoimmune/allergic diseases /Oral	ROR $\gamma$ antagonist	Suppresses overactive immune response via inhibition of ROR $\gamma$ related to Th 17 activation.	Phase1(Overseas)	In-house
JTT-751 (ferric citrate)	Iron-deficiency anemia/Oral	Oral iron replacement	Corrects iron-deficiency anemia by using absorbed Iron for synthesis of hemoglobin.	Phase2(Japan)	In-license (Keryx Biopharmaceuticals) Co-development with Torii *additional indication

Clinical trial phase presented above is based on the first dose.

### <Licensed compounds>

Compound (JT's code)	Licensee	Mechanism		Note
trametinib	Novartis	MEK inhibitor	Inhibits cellular growth by specifically inhibiting the activity of MAPK/ERK Kinase (MEK1/2).	NSCLC, trametinib+dabrafenib U.S., EU, Japan marketing approvals submitted
Anti-ICOS monoclonal antibody	MedImmune	ICOS antagonist	Suppresses overactive immune response via inhibition of ICOS which regulates activation of T cells.	
JTE-052	LEO Pharma	JAK inhibitor	Suppresses overactive immune response via inhibition of Janus kinase (JAK) related to immune signal.	
JTZ-951	JW Pharmaceutical	HIF-PHD inhibitor	Increases red blood cells by stimulating production of erythropoietin, an erythropoiesis-stimulating hormone, via inhibition of HIF-PHD.	

Updates since the previous announcement on October 31, 2016:

### <In-house development>

- JT obtained manufacturing and marketing approval of Descovy® Combination Tablets LT and HT in Japan on December 9, 2016
- JTE-051: advanced to Phase 2 in Overseas
- JTT-851: terminated