# Nintedanib
# PRODUCT DATA SHEET

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| **Product Name:** | Nintedanib |
| **Product Number:** | N065 |
| **CAS Number:** | 656247-17-5 |
| **Molecular Formula:** | $C_{31}H_{33}N_5O_4$ |
| **Molecular Weight:** | 539.63 |
| **Solubility:** | Practically insoluble in water (9.66 mg/L) |
| **Source:** | synthetic |
| **Storage Conditions:** | -20C |
| **Description:** | Nintedanib is an indolinone derivative and small molecule tyrosine-kinase inhibitor, inhibiting endothelial growth factor activity in enzymatic assays. It targets vascular endothelial growth factor receptor (VEGFR) 1-3, fibroblast growth factor receptor (FGFR), and platelet-derived growth factor receptor (PDGFR) α and β, which may result cell apoptosis, a reduction in tumor vasculature; and the inhibition of tumor cell proliferation and migration. This agent also inhibits some Src family of tyrosine kinases, including Src, Lck, Lyn, and FLT-3. |
| **Mechanism of Action:** | Nintedanib binds to the ATP-binding site in the cleft between the amino and carboxy terminal lobes of the kinase domain . Nintedanib binds to and blocks the activation of cell receptors involved in blood vessel formation (angiogenesis) and reshaping. It inhibits cell proliferation in 3 cell types: endothelial cells, pericytes, and smooth muscle cells, resulting in apoptosis. The compound blocks the intracellular signalling needed for the proliferation, migration and transformation of fibroblasts. |
| **Cancer Applications** | Nintedanib exerts its anti-cancer effect by binding to and blocking the activation of cell receptors involved in tumor blood vessel formation and reshaping, |
| **References:** | Hilberg F et al (2008) BIBF 1120: Triple angiokinase inhibitor with sustained receptor blockade and good antitumor efficacy. Cancer Res. 68(12):4774-4782. PMID 18559524 Lehtonen, ST et al (2016) Pirfenidone and nintedanib modulate properties of fibroblasts and myofibroblasts in idiopathic pulmonary fibrosis. Resp. Res.17(14) DOI 10.1186. PMID 26846335 |