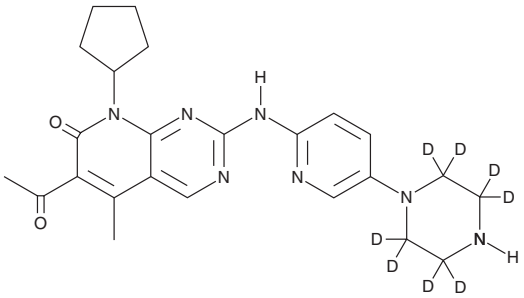
# PRODUCT INFORMATION

## PD 0332991-$d_8$

*Item No. 25421*

**CAS Registry No.:** 1628752-83-9
**Formal Name:** 6-acetyl-8-cyclopentyl-5-methyl-2-[[5-(1-piperazinyl-2,2,3,3,5,5,6,6-$d_8$)-2-pyridinyl]amino]-pyrido[2,3-d]pyrimidin-7(8H)-one
**Synonym:** Palbociclib-$d_8$
**MF:** $C_{24}H_{21}D_8N_7O_2$
**FW:** 455.6
**Chemical Purity:** ≥98% (PD 0332991)
**Deuterium Incorporation:** ≥99% deuterated forms ($d_1$-$d_8$); ≤1% $d_0$
**Supplied as:** A solid
**Storage:** -20°C
**Stability:** ≥4 years



*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

## Laboratory Procedures

PD 0332991-$d_8$ is intended for use as an internal standard for the quantification of PD 0332991 (Item No. 16273) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

PD 0332991-$d_8$ is supplied as a solid. A stock solution may be made by dissolving the PD 0332991-$d_8$ in the solvent of choice. PD 0332991-$d_8$ is soluble in the organic solvent DMSO, which should be purged with an inert gas.

## Description

PD 0332991 is an orally active, selective inhibitor of the cyclin D kinases Cdk4 ($IC_{50}$ = 11 nM) and Cdk6 ($IC_{50}$= 16 nM) with no activity against a panel of 36 additional protein kinases.[1] It has been reported to have antiproliferative activity against retinoblastoma-positive tumor cells, blocking retinoblastoma phosphorylation and inducing $G_1$ arrest at nanomolar concentrations. PD 0332991 can inhibit the growth of certain ER-positive or HER2-amplified breast cancer cells ($IC_{50}$s as low as 4 nM) and demonstrates synergy with tamoxifen (Item No. 13258) and trastuzumab, respectively.[2] PD 0332991 inhibition of Cdk4 activity has been used to demonstrate a role for insulin-activated cyclin D1-Cdk4 signaling in the control of glucose metabolism that is independent of cell cycle progression.[3]

## References


1. Fry, D.W., Harvey, P.J., Keller, P.R., *et al.* Specific inhibition of cyclin-dependent kinase 4/6 by PD 0332991 and associated antitumor activity in human tumor xenografts. *Mol. Cancer Ther.* **3(11)**, 1427-1438 (2004).
2. Finn, R.S., Dering, J., Conklin, D., *et al.* PD 0332991, a selective cyclin D kinase 4/6 inhibitor, preferentially inhibits proliferation of luminal estrogen receptor-positive human breast cancer cell lines *in vitro*. *Breast Cancer Res.* **11(5)**, 1-13 (2009).
3. Lee, Y., Dominy, J.E., Choi, Y.J., *et al.* Cyclin D1-Cdk4 controls glucose metabolism independently of cell cycle progression. *Nature* **510(7506)**, 547-551 (2014).





**CAYMAN CHEMICAL**
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
**PHONE:** [800] 364-9897
[734] 971-3335
**FAX:** [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM