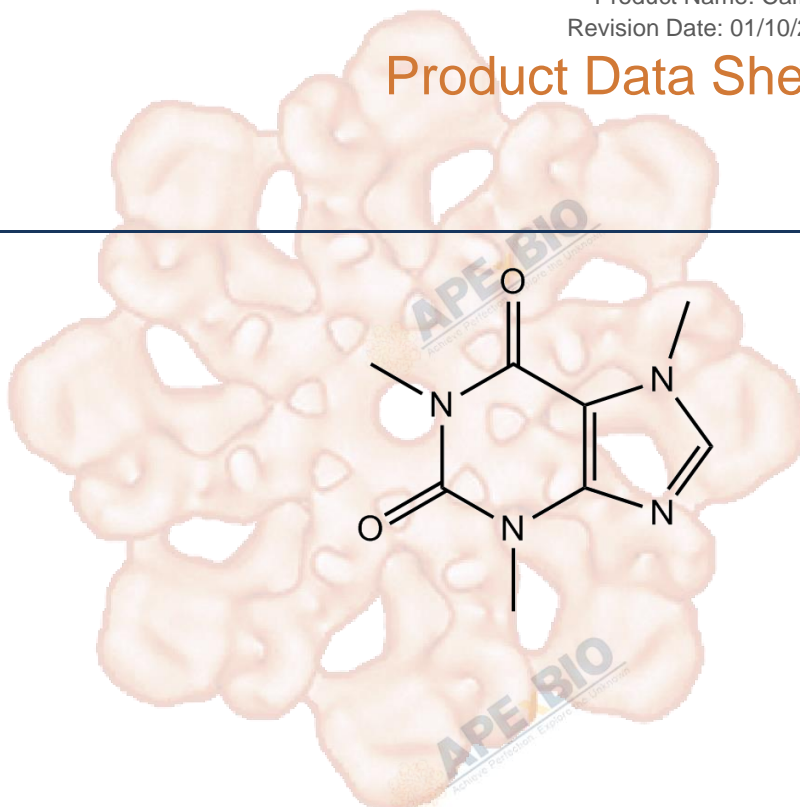


Product Data Sheet

Caffeine

| | |
|------------------|--|
| Cat. No.: | N2379 |
| CAS No.: | 58-08-2 |
| Formula: | C ₈ H ₁₀ N ₄ O ₂ |
| M.Wt: | 194.19 |
| Synonyms: | |
| Target: | Natural Products |
| Pathway: | |
| Storage: | Store at -20°C |



Solvent & Solubility

insoluble in EtOH; ≥ 25 mg/mL in H₂O; ≥ 33.33 mg/mL in DMSO

In Vitro

| Preparing Stock Solutions | Solvent | Mass | | |
|---------------------------|----------------------|-----------|------------|------------|
| | | 1mg | 5mg | 10mg |
| | Concentration | | | |
| | 1 mM | 5.1496 mL | 25.7480 mL | 51.4960 mL |
| | 5 mM | 1.0299 mL | 5.1496 mL | 10.2992 mL |
| | 10 mM | 0.5150 mL | 2.5748 mL | 5.1496 mL |

Please refer to the solubility information to select the appropriate solvent.

Biological Activity

Shortsummary

IC₅₀ & Target

In Vitro

Cell Viability Assay

| | |
|----------------------|--|
| Cell Line: | Patient-derived AC-UPS01 and AC-RMS01 cell lines |
| Preparation method: | The solubility of this compound in DMSO is >10 mM. General tips for obtaining a higher concentration: Please warm the tube at 37°C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months. |
| Reacting conditions: | 0.25, 0.5, 1, 2.5 and 5 mM; 72 h |

| | | |
|---------|--------------------------|--|
| | Applications: | Caffeine significantly inhibited the patient-derived UPS and RMS cell lines in a dose-dependent manner with IC50 values of 2.02 ± 0.22 mM and 2.37 ± 0.48 mM, respectively. Addition of 0.3 mM or 0.6 mM VPA to varying concentrations of CAF enhanced efficacy against both the AC-UPS01 and AC-RMS01 cell lines. |
| In Vivo | Animal experiment | |
| | Animal models: | diet-induced obesity (DIO) mice |
| | Dosage form: | 10 µg per mouse, i.c.v. administration |
| | Applications: | In diet-induced obesity (DIO) mice, administration of caffeine into mouse brain significantly increased the numbers of c-Fos+ cells in the PVN, Arc and DMH nuclei, suggesting that caffeine stimulated the activities of neurons in the hypothalamic nuclei involved in energy balance control. Caffeine reduced the adipocyte sizes of epididymal white adipose tissue, plasma triglycerides (TG) levels and improved glucose tolerance. Mice gained significantly less body weights than the controls on day 7. |
| | Other notes: | Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal. |

Product Citations

See more customer validations on www.apexbt.com.

References

- [1] Igarashi K1,2,3, Kawaguchi K1,2, Kiyuna T1,2, et al. Efficacy In Vitro of Caffeine and Valproic Acid on Patient-Derived Undifferentiated Pleomorphic Sarcoma and Rhabdomyosarcoma Cell Lines. *Anticancer Res.* 2017 Aug;37(8):4081-4084.
- [2] Wu L1, Meng J1, Shen Q1, et al. Caffeine inhibits hypothalamic A1R to excite oxytocin neuron and ameliorate dietary obesity in mice. *Nat Commun.* 2017 Jun 27;8:15904.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APEX BIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short-term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt

of the product, follow the storage recommendations on the product data sheet.



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