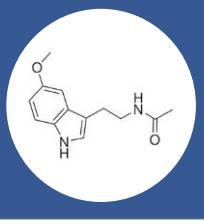
SALIVARY MELATONIN QUICK START GUIDE



BIOLOGICAL CONSIDERATIONS

Melatonin is a hormone that centrally regulates the sleep-wake cycle by chemically causing drowsiness, regulating blood pressure, and lowering body temperature. It is mainly produced by the pineal gland at night and secretion is halted upon sunlight exposure in the morning. Salivary melatonin levels are strongly correlated with serum and offer an attractive alternative for home collection sleep assessments. Analysis of melatonin in saliva enables researchers and clinicians to design non-invasive studies to define various aspects of circadian physiology and sleep. Saliva is commonly utilized for evaluating Dim Light Melatonin Onset (DLMO), which is essential in evaluating patients with circadian rhythm sleep disorders. A shifted DLMO may result in chronotherapy using exogenous melatonin or morning light exposure to help reset the biological clock. Melatonin dysregulation affects multiple body-wide systems and often results in chronic sleep deficits with symptoms that can be misdiagnosed. Melatonin levels peak in the middle of the night, and gradually fall until morning, varying by an individual's chronotype. Melatonin levels also share an inverse, diurnal relationship with salivary cortisol levels in healthy subjects.

Biological Representation	Systemic
Serum-Saliva Correlation	0.81

SAMPLE TIMING AND DESIGN

Melatonin production exhibits a dramatic circadian pattern and at times in this cycle levels of melatonin in saliva may not be detectable. Shift work, sleep disruption, use of caffeine or alcohol, and consumption of pitted fruit, chocolate, and bananas have been shown to indirectly impact Melatonin levels. In some countries, melatonin is available with or without prescription and consumption of melatonin will directly affect levels in saliva.

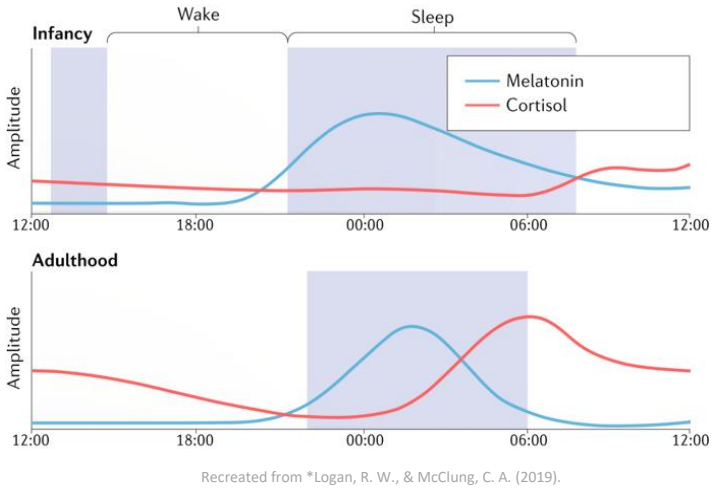
FREQUENTLY STUDIED WITH

Cortisol

TECHNICAL SUMMARY

Sample Collection Methods & Volumes	
Passive Drool	✓
SalivaBio Swabs	-
Optimum Collection Volume	125 µL*

*Add 300 µL to the total collection volume for all analytes of interest.



Recreated from *Logan, R. W., & McClung, C. A. (2019).

EXAMPLE DATA

During infancy, sleep–wake rhythms are ultradian and consolidate during the first year of development. From childhood to adolescence, there is a marked shift from an early to a late chronotype, which subsequently becomes earlier during adulthood.

KEY RESOURCES

1. Voultsios, A., Kennaway, D.J., Dawson, D. (1997). Salivary melatonin as a circadian phase marker: Validation and comparison to plasma melatonin. J Biol Rhythms, 12(5), 457-66.
2. Vakkuri, O. (1985). Diurnal rhythm of melatonin in human saliva. Acta Physiol Scand, 124(3), 409-412.
3. Keijzer, H., et al.. (2014). Why the dim light melatonin onset (DLMO) should be measured before treatment of patients with circadian rhythm sleep disorders. Sleep Med Rev, 18, 333-339.
4. *Logan, R. W., & McClung, C. A. (2019). Rhythms of life: circadian disruption and brain disorders across the lifespan. Nature reviews. Neuroscience, 20(1), 49–65.
5. Krystal, A. D., et al., (2021). Chronobiologic parameter changes in patients with major depressive disorder and sleep disturbance treated with adjunctive brexpiprazole: An open-label, flexible-dose, exploratory substudy. Journal of affective disorders, 278, 288–295.
6. Cutando, A., et al. (2003). Relationship between salivary melatonin levels and periodontal status in diabetic patients. J Pineal Res, 35(4), 239-44.
7. Burgess, H.J., et al. (2015). Home Circadian Phase Assessments with Measures of Compliance Yield Accurate Dim Light Melatonin Onsets. Sleep, 38, 889-897.