



**Figure S1. Sleep-Wake Rhythm Investigation Support System (IAC, Inc.)**

(a) Caregiver draw a sleep rhythm of the child The results are analyzed by SWRISS. The horizontal axis represents the 48-hour day by day plot method. The vertical axis is the recorded period to be evaluated which is set by researchers .

(b) The sleep rate indicates the percentage of sleeping time corresponding time zone during the recorded period in the upper sleep chart. The sleep rate of this patients shows only 90% during midnight to morning.