As big data accumulate in genetics and related fields, AI is becoming increasingly important for efficient knowledge discovery. In unsupervised machine learning, knowledge discovery is left to AI without a preset model or hypothesis. The main image (A) depicts a BLSOM (batch-learning self-organizing map) that visualizes the occurrences of ~4,000 octanucleotide transcription factor binding sequences (TFBSs) in all 1-Mb fragments of the human genome. Nodes containing sequences from more than one chromosome are in black, and those containing sequences from only one are in other colors. No information about chromosomes was provided during the learning process, but centromeric and pericentromeric sequences of individual chromosomes were separated (self-organized) in a specific region (SZ in B) on the map. Seven examples of centromeric and pericentromeric enrichment (red) of particular TFBSs on individual chromosomes complete the picture. For more details, see the article by Kennosuke Wada et al. in this issue.
Front inset: As big data accumulate in genetics and related fields, AI is becoming increasingly important for efficient knowledge discovery. In unsupervised machine learning, knowledge discovery is left to AI without a preset model or hypothesis. The main image (A) depicts a BLSOM (batch-learning self-organizing map) that visualizes the occurrences of ~4,000 octanucleotide transcription factor binding sequences (TFBSs) in all 1-Mb fragments of the human genome. Nodes containing sequences from more than one chromosome are in black, and those containing sequences from only one are in other colors. No information about chromosomes was provided during the learning process, but centromeric and pericentromeric sequences of individual chromosomes were separated (self-organized) in a specific region (SZ in B) on the map. Seven examples of centromeric and pericentromeric enrichment (red) of particular TFBSs on individual chromosomes complete the picture. For more details, see the article by Kennosuke Wada et al. in this issue.

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