Background
In our cells, DNA is packaged as chromatin by wrapping the DNA around proteins known as histones. The ability to regulate gene activity in cells depends on specific chromatin enzymes that are able to modify the histones with chemical tags including: acetylation, methylation and phosphorylation. To date, biochemical analysis of how these chromatin modifications turn gene activity on or off has been hampered by the lack of a source of robust, active, chromatin modification enzymes.

Invention Description
The disclosed invention describes the availability of two different yeast histone acetyltransferase (HAT) complexes: the Ada2/Ada3/Gcn5 subcomplex of the SAGA HAT complex which acetylates histones H3 and H2B, and the Piccolo NuA4 subcomplex of the Piccolo HAT complex which acetylates the complementary histones H4 and H2A. Proprietary technology was employed to express and reconstitute the minimal multi-component catalytic subcomplexes in E. coli, and to purify these complexes to near homogeneity with very high enzyme activity.

Advantages/Applications
• Our complexes are capable of acetylating histone tails in nucleosomes. In contrast, the catalytic subunit alone possesses very weak activity on naked histone substrates and almost no activity on the more physiological nucleosome substrates.
• Complex production via E. coli facilitates ease of expression, purification and scale up.
• Milligram quantities of both enzymes highly active in nucleosome acetylation can be isolated from liter scale E. coli cultures.
• The only other source of these enzyme activities are the native SAGA and NuA4 complexes which can only be isolated in low microgram quantities from yeast cells (1,000-10,000x less total enzyme activity for same volume culture).

Addendum: Antibodies to HAT Complex Subunits
Antibodies raised in rabbits to each of the six subunits (Ada2, Ada3, Gcn5, Epl1, Yng2, Esa1) are also available for licensing. Approximately 100 ml of serum is available to be used at a working concentration of 1:500-1:1000.