

# CHROMATIN IMMUNOPRECIPIATION SureBeads Protein A and G Magnetic Beads

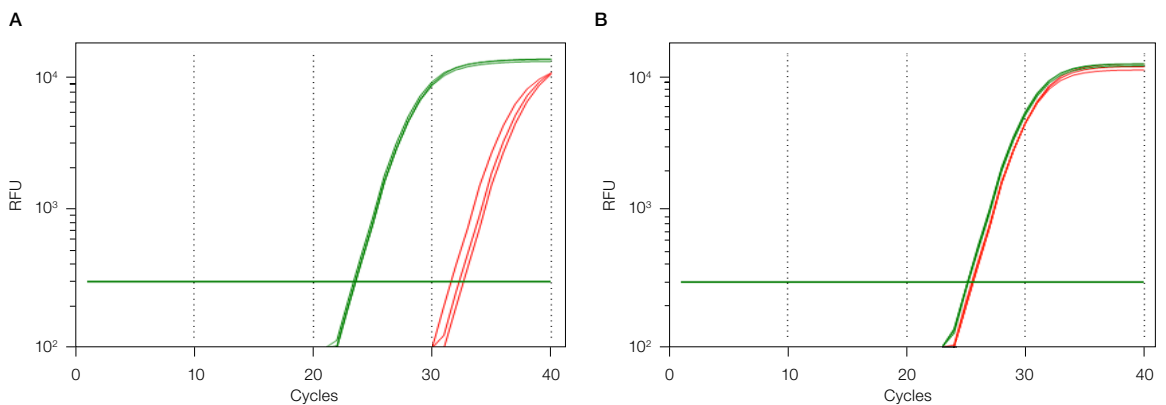
## Chromatin Immunoprecipitation (ChIP) with SureBeads Protein A and G Magnetic Beads

SureBeads Protein A and G Magnetic Beads and Magnetic Racks are designed for quick and easy immunoprecipitation (IP) protocols, including ChIP. Other immunoprecipitation workflows are possible with SureBeads Magnetic Beads, including protein isolation, co-immunoprecipitation (Co-IP) or protein complex pull-down, and high-affinity binding of human, rat, and mouse IgGs. SureBeads Magnetic Beads contain a superparamagnetic core, which enables rapid, highly efficient immunoprecipitation without the need for centrifugation.

### ChIP with SureBeads Magnetic Beads

H3K4Me3 is a histone and epigenetic marker associated with the active transcription of nearby genes. An antibody specific to H3K4Me3 was coupled to SureBeads Magnetic Beads to investigate

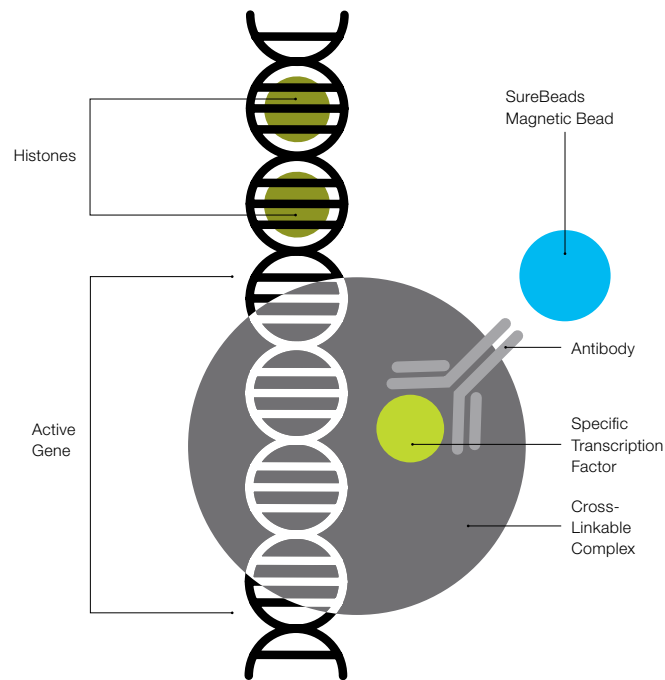
the histone's association with the active GAPDH promoter and inactive HBB promoter. SureBeads not linked to an antibody served as the negative input control. qPCR was performed with SsoAdvanced Universal SYBR® Green Supermix on a CFX96 Real-Time PCR Detection System to validate histone-promoter association with ChIP. qPCR data show that more GAPDH promoter was immunoprecipitated with the SureBeads-H3K4Me3 antibody coupling, which indicates that H3K4Me3 is associated with the GAPDH promoter (Figure 1A). In contrast, there was no difference in the qPCR data between the H3K4Me3-HBB complex and negative control (Figure 1B). This implies that H3K4Me3 is not associated with the inactive HBB promoter.



**Fig. 1. Successful investigation of histone-promoter association with ChIP.** **A**, qPCR data shows amplification of the H3K4Me3-GAPDH complex appearing at cycle 23.4, significantly ahead of the input control amplification beginning at cycle 32.1. **B**, qPCR data shows that the amplification of the H3K4Me3-HBB complex appears with the input control at cycle 25.1 and 25.5, respectively. RFU, relative fluorescence units. Histone-promoter complex (—); input control (—).

**Chromatin immunoprecipitation (ChIP)** is a powerful epigenetic research technique commonly used to identify and analyze protein-DNA interactions. ChIP targets transcription regulation induced by histone modification or transcription factors. ChIP assays can be used with SureBeads Magnetic Beads and require six major steps:

1. Crosslink coordinating genes and proteins and conduct cell lysis.
2. Shear DNA via sonication or digestion.
3. Immunoprecipitate with SureBeads Magnetic Beads and specific antibodies.
4. Isolate target protein-DNA complexes and reverse crosslink them.
5. Purify target DNA sequence.
6. Sequence and quantify DNA (for example, PCR).



Graphical representation of ChIP complex.

## Ordering Information

Catalog #	Description
1614013	<b>SureBeads Protein A Magnetic Beads</b> , 3 ml
1614023	<b>SureBeads Protein G Magnetic Beads</b> , 3 ml
1614916	<b>SureBeads Magnetic Rack</b> , 16-tube holder
1614011	<b>SureBeads Protein A Magnetic Beads</b> , 1 ml
1614021	<b>SureBeads Protein G Magnetic Beads</b> , 1 ml
1614833	<b>SureBeads Starter Kit Protein A and G</b> , Protein A and G beads and magnetic rack
1614813	<b>SureBeads Starter Kit Protein A</b> , two Protein A beads and magnetic rack
1614823	<b>SureBeads Starter Kit Protein G</b> , two Protein G beads and magnetic rack
1725270	<b>SsoAdvanced Universal SYBR® Green Supermix</b> , 2 ml (2 x 1 ml vials), 200 x 20 µl reactions
1725271	<b>SsoAdvanced Universal SYBR® Green Supermix</b> , 5 ml (5 x 1 ml vials), 500 x 20 µl reactions
1725272	<b>SsoAdvanced Universal SYBR® Green Supermix</b> , 10 ml (10 x 1 ml vials), 1,000 x 20 µl reactions
1725280	<b>SsoAdvanced Universal Probes Supermix</b> , 2 ml (2 x 1 ml vials), 200 x 20 µl reactions
1725281	<b>SsoAdvanced Universal Probes Supermix</b> , 5 ml (5 x 1 ml vials), 500 x 20 µl reactions
1725282	<b>SsoAdvanced Universal Probes Supermix</b> , 10 ml (10 x 1 ml vials), 1,000 x 20 µl reactions
1725016	<b>SsoAdvanced Universal Inhibitor-Tolerant SYBR® Green Supermix</b> , 2 ml (2 x 1 ml vials), 200 x 20 µl reactions
1725017	<b>SsoAdvanced Universal Inhibitor-Tolerant SYBR® Green Supermix</b> , 5 ml (1 x 5 ml vial), 500 x 20 µl reactions
1855196	<b>CFX96 Touch Real-Time PCR Detection System with Starter Package</b> , includes C1000 Touch Thermal Cycler Chassis, CFX96 Optical Reaction Module, CFX Maestro Software, license for qbase+ Software, communication cable, reagents, consumables
1855195	<b>CFX96 Touch Real-Time PCR Detection System</b> , includes C1000 Touch Thermal Cycler Chassis, CFX96 Optical Reaction Module, communication cable
12004110	<b>CFX Maestro Software</b>
12004128	<b>CFX Maestro Software for Mac</b>
12005258	<b>CFX Maestro Software, Security Edition</b> , includes one user license, installation CD, HASP HL key

Visit [bio-rad.com/SureBeads](http://bio-rad.com/SureBeads) for more information.

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