Dynabeads™ 磁気ビーズ アプリケーション紹介 ゲノム解析、遺伝子発現解析

ここで紹介するのは Dynabeads を用いた Differential display(ディファレンシャルディスプレイ)法、5'RACE 法、ヌクレアーゼ S1 (S1 ヌクレアーゼ・マッピング)法、DNase I フットプリント法、RNA/DNA 結合性タンパクの精製と腫瘍特異性の変更の隔離と病原体中の毒素遺伝子の識別のための Subtractive hybridization などゲノム解析、遺伝子発現解析に関わるアプリケーションです。

例えばライブラリから cDNA のクローニングとシーケンシングに代表される多くの遺伝子発現プロファイリング法において Dynabeads Streptavidin シリーズあるいは Dynabeads Oligo(dT)$_{25}$ (mRNA purification シリーズ)が多数利用されています 2kb より長い二重鎖 DNA は Dynabeads kilobase BINDER キットの利用が効果的です。

なぜゲノム分析、遺伝子発現解析に Dynabeads Streptavidin が選ばれるのか？

- 簡便なハンドリング
- 高い反応速度
- 低い非特異結合
- 純粋で均一な転写制御因子を 30 分で単離
- タンパク質の単離に最適
- DNA/RNA 結合タンパク質を最大 20,000 倍に濃縮
- Dynabeads streptavidin に結合した DNA は、少なくとも 10 回再利用可

Reverse transcription PCR

- Jost R et al, (2007) Biotechniques 43: 206-211. Magnetic quantitative reverse transcription PCR: A high-throughput method for mRNA extraction and quantitative reverse transcription PCR.

DNA/RNA binding protein isolation

- Mehta A et al. (1998). A sequence-specific RNA binding protein complements Apobec-1 to edit apolipo protein B mRNA. Mol. Cel. Biol. 18(8):4426-4432.
- Biroccio A. et al. (2002). Selection of RNA aptamers that are specific and high-affinity ligands of the hepatitis C virus RNA-dependent RNA polymerase. J. Virol. 76(8):3688-3696.
- Nordhoff E. et al. (1999). Rapid identification of DNA-binding proteins by mass spectrometry. Nat. Biotechnol. 17: 884-888.
- Brodsky AS. and Silver A. (2002). A microbead based system for identifying and characterizing RNA-protein interactions by flow cytometry. Mol. Cel. Proteomics 1(12):922-929.

Solid-phase DNase footprinting

- Fletcher TM. et al. (2002). Structure and dynamic properties of a glucocorticoid receptor-induced chromatin transition. Mol. Cel. Biol. 20(17): 6466-6475.

Solid-phase S1 nuclease mapping

- Dziembowski A. et al. (2001). Analysis of 3' and 5' ends of RNA by solid-phase S1 nuclease mapping. Anal. Biochem. 294:87-89.

Subtractive hybridization

- Hansen-Hagge TE. et al. (2001). Identification of sample-specific sequences in mammalian cDNA and genomic DNA by the novel ligation mediated subtraction (Limes). Nucl. Acids Res. 29(4):e20.
- Pradel N. et al. (2002). Genomic subtraction to identify and characterize sequences of Shiga toxin-producing Escherichia coli O91:H21. Appl. Env. Microbiol. 68(5):2316-2325.
- Laveder P. et al. (2002). A two-step strategy for constructing specifically self-subtracted cDNA libraries. Nucleic Acids Res. 30(9): e38

Differential display

- Kornmann B. et al. (2001). Analysis of circadian liver gene expression by ADDER, a highly sensitive method for the display of differentially expressed mRNAs. Nucleic Acids Res. 29(11). e51
- Brenner S. et al. (2000). In vitro cloning of complex mixtures of DNA on microbeads: Physical separation of differentially expressed cDNAs. PNAS. 97(4): 1665-1670.

Limes

- Hansen-Hagge TE. et al. (2001). Identification of sample-specific sequences in mammalian cDNA and genomic DNA by the novel ligation mediated subtraction (Limes). Nucl. Acids Res. 29(4):e20.

5' RACE

- Schramm G. et al. (2000).A simple and reliable 5'-RACE approach. Nucl. Acids Res. 28(22):e96

SAGE®

- Velculescu VE. et al. (1995). Serial analysis of gene expression. Science. 270(5235): 484-487.

TOGA

- Sutcliffe JG. et al. (2000). TOGA: An automated parsing technology for analyzing expression of nearly all genes. PNAS. 97(5): 1976-1981.

RAGE

- Wang A. et al. (1999). Rapid analysis of gene expression (RAGE) facilitates universal expression profiling. Nucleic Acids Res. 27(23): 4609-4618.

Double stranded DNA fragments > 2 kB

- Fletcher TM. et al. (2002). Structure and dynamic properties of a glucocorticoid receptor-induced chromatin transition. Mol. Cel. Biol. 20(17): 6466-6475.
- Heald R. et al. (1996) Self-organization of microtubules into bipolar spindles around artificial chromosomes in Xenopus egg extracts. Nature 382:420-425.

S1 nuclease mapping

- Lindblad-Toh K. et al. (2000). Large-scale discovery and genotyping of single nucleotide polymorphisms in the mouse. Nature Genetics. 24:381-386.

RTPCR/ECL

- Miyashiro I. et al. (2001). Molecular strategy for detecting metastatic cancers with use of multiple tumor-specific MAGE-A genes. Clin. Chem. 47(3):505-512.

製品リスト

Dynabeads Streptavidin

商品コード	商品名	梱包単位
DB11205	Dynabeads M-280 Streptavidin	2 mL
DB11206	Dynabeads M-280 Streptavidin	10 mL
DB60101	Dynabeads Kilobase BINDER kit	1 kit
DB60210	Dynabeads M-280 Streptavidin	100 mL
DB65001	Dynabeads MyOne Streptavidin C1	2 mL
DB65002	Dynabeads MyOne Streptavidin C1	10 mL
DB65305	Dynabeads M-270 Streptavidin	2 mL
DB65306	Dynabeads M-270 Streptavidin	10 mg/mL
DB65601	Dynabeads MyOne Streptavidin T1	2 mL
DB65602	Dynabeads MyOne Streptavidin T1	10 mL
DB65801	Dynabeads Streptavidin Trial Kit	1 mL x 4

Dynabeads Oligo($dT)_{25}$ (mRNA purification シリーズ)

商品コード	商品名	梱包単位
DB61002	Dynabeads Oligo (dT)25	2 mLx1
DB61005	Dynabeads Oligo (dT)25	5 mLx1
DB61006	Dynabeads mRNA Purification kit	2 mL
DB61011	Dynabeads mRNA DIRECT kit	5 mL
DB61012	Dynabeads mRNA DIRECT kit (8/40 isol.)	10 mL
DB61021	Dynabeads mRNA DIRECT Micro kit (100isol.)	2 mL

株式会社ベリタス 〒105-0013 東京都港区浜松町 1-10-14 住友東新橋ビル 3 号館 5 階

TEL 03-5776-0078 FAX 03-5776-0076

技術的なお問い合わせは:TEL 03-5776-0040 E-mail techservice@veritastk.co.jp