

QKGEN[®] NGS Dual Index Primers Kit
(for Illumina)

使用说明书 (V1.0)

本产品仅供科研用途

本试剂盒是 Illumina 平台二代测序文库构建的专用试剂盒，包含通用 adapter 和 CDI 扩增引物，在进行文库构建时可构建出 384 种双端 Index 标记的文库。

产品信息

产品名称	货号	规格
QKGEN [®] NGS Dual Index Primers Kit A (for Illumina)	QJI0096	96T
QKGEN [®] NGS Dual Index Primers Kit B (for Illumina)	QJI0192	96T
QKGEN [®] NGS Dual Index Primers Kit C (for Illumina)	QJI0288	96T
QKGEN [®] NGS Dual Index Primers Kit D (for Illumina)	QJI0384	96T

产品组分

组分名称	浓度	规格
通用 adapter	15 μ M	480 μ L/管
CDI 001-096 / 097-192 / 193-288 / 289-384	20 μ M	5 μ L/孔

保存方法：-20°C

注意事项：

1. 使用本试剂盒前，请将各组分置于冰上解冻，解冻后颠倒混匀，短暂离心后置于冰上待用，切勿将试剂长时间置于高温 (>25°C) 环境，应避免反复冻融。
2. 本试剂盒提供的通用 adapter 为通用型短接头，需要进行文库扩增将其连接完整。
3. 本试剂盒提供的通用 adapter 为 15 μ M，可以根据不同的样本投入量或建库试剂进行一定量的稀释，具体参照各自的建库说明书，建议使用 low TE 或者 EB Buffer (10 mM Tris-HCL, pH 8.0) 进行稀释。
4. 在使用 Index 引物时请随时更换一次性手套，避免交叉污染。

操作步骤:

本试剂盒适用于齐凯基因提供的 DNA 文库构建试剂盒 (for Illumina), 具体的使用方法可按照 DNA 文库构建试剂盒的说明进行。

接头连接 (Adapter Ligation) :

1. 根据表一计算通用 adapter 的用量, 并根据样本量进行相应倍数的稀释:

表一 不同 DNA 投入量的 adapter 用量

Input DNA 量	Adapter 浓度	稀释倍数	反应终浓度
50ng – 1000ng	15 μ M	0	0.68 μ M
25ng	7.5 μ M	2	0.34 μ M
10ng	3.0 μ M	5	0.136 μ M
5ng	1.5 μ M	10	0.068 μ M
2.5ng	0.75 μ M	20	0.034 μ M
1ng	0.3 μ M	50	0.014 μ M

2. 向末端修复/加 A 的产物中, 加入以下表格配制的接头连接反应体系:

表二 接头连接反应体系

试剂名称	体积
末端修复及加 A 纯化产物	60 μ L
T4 链接缓冲液	35 μ L
T4 DNA 链接酶	5 μ L
通用 adapter*	5 μ L
无核酸酶水	5 μ L
总体积	110 μ L

注: *通用 adapter 应与 T4 DNA 链接酶分开添加, 避免产生接头二聚体。建议先往末端修复/加 A 产物中加入通用 adapter, 再加入其他成分或其他成分配好的 mix。

3. 使用移液器轻轻吹打或轻柔振荡混匀, 并短暂离心将反应液离心至管底。
4. 将上述 PCR 管置于 PCR 仪中 25 $^{\circ}$ C, 孵育 15 min (无热盖)。

连接产物磁珠纯化 (Post Ligation Clean Up) :

该步骤根据项目要求进行接头连接反应产物纯化或片段分选, 具体步骤参考 DNA 文库构建试剂盒。

文库扩增 (Library Amplification) :

此步骤的目的为将样本 Barcode 及测序引物扩增, 得到完整的 DNA 文库, 使用本试剂盒进行文库构建时, 必须进行该步骤。

1. 根据下表三所示配制文库扩增反应体系:

表三 文库扩增反应体系

试剂名称	体积
接头连接纯化产物	20 μ L
Index 引物 i5XX*	2.5 μ L
Index 引物 i7XX*	2.5 μ L
HiFi 文库扩增试剂	25 μ L
总体积	50 μ L

注: *每个样本加入不同的 Index 引物 i5XX 和 Index 引物 i7XX, 具体序列及组合方案详见附录。

2. 使用移液器轻轻吹打或轻柔振荡混匀, 并短暂离心。
3. 按下表四设置反应程序, 将上述 PCR 管置于 PCR 仪中反应。

表四 文库扩增反应程序

步骤	温度	时间	循环数
预变性	98°C	45 sec	1
变性	98°C	15 sec	} 根据实验需要调整
退火	65°C	30 sec	
延伸	72°C	30 sec	
终延伸	72°C	1 min	1
保持	4°C	∞	1

扩增产物磁珠纯化 (Post Amplification Clean Up) :

对文库扩增产物进行纯化, 具体步骤参考 DNA 文库构建试剂盒。

附 录

一、通用 Adapter 序列信息：

通用 Adapter 名称	序列 (5'-3')
PE1.0	5'-p-GATCGGAAGAGCACACGTCTGAACTCCAGTCAC-3'
PE2.0	5'-ACACTCTTTCCCTACACGACGCTCTTCCGATC-s-T-3'

注：p 代表磷酸化修饰，s 代表硫代修饰

二、双端 Index 引物序列信息:

i5 Index 引物:

5'-AATGATACGGCGACCACCGAGATCTACAC[i5]ACACTCTTTCCCTACACGACGCTCTCCGATCT-3'

i7 Index 引物:

5'-CAAGCAGAAGACGGCATACGAGAT[i7]GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT-3'

Index 序列:

QKGEN® NGS Dual Index Primers Kit A (for Illumina)(货号: QJI0096)中包含 CDI 001-096, QKGEN® NGS Dual Index Primers Kit B (for Illumina)(货号: QJI0192)中包含 CDI 097-192, QKGEN® NGS Dual Index Primers Kit C (for Illumina) (货号 QJI0288) 中包含 CDI 193-288, QKGEN® NGS Dual Index Primers Kit D (for Illumina) (货号 QJI0384) 中包含 CDI 289-384

接头编号	i7_index 名称	i7 index (all Illumina® systems)	i5_index 名称	i5 index (HiSeq® 2000/2500, MiSeq®, NovaSeq® v1.0 systems)	i5 index (HiSeq® 3000, 4000, HiSeq® X, N extSeq®, MiniSeq®, NovaSeq® v1.5 systems)
CDI-001	Index i701	ATTACTCG	Index i501	AGGCTATA	TATAGCCT
CDI-002	Index i701	ATTACTCG	Index i502	GCCTCTAT	ATAGAGGC
CDI-003	Index i701	ATTACTCG	Index i503	AGGATAGG	CCTATCCT
CDI-004	Index i701	ATTACTCG	Index i504	TCAGAGCC	GGCTCTGA
CDI-005	Index i701	ATTACTCG	Index i505	CTTCGCCT	AGGCGAAG
CDI-006	Index i701	ATTACTCG	Index i506	TAAGATTA	TAATCTTA
CDI-007	Index i701	ATTACTCG	Index i507	ACGTCTCTG	CAGGACGT
CDI-008	Index i701	ATTACTCG	Index i508	GTCAGTAC	GTACTGAC

CDI-009	Index i702	TCCGGAGA	Index i501	AGGCTATA	TATAGCCT
CDI-010	Index i702	TCCGGAGA	Index i502	GCCTCTAT	ATAGAGGC
CDI-011	Index i702	TCCGGAGA	Index i503	AGGATAGG	CCTATCCT
CDI-012	Index i702	TCCGGAGA	Index i504	TCAGAGCC	GGCTCTGA
CDI-013	Index i702	TCCGGAGA	Index i505	CTTCGCCT	AGGCGAAG
CDI-014	Index i702	TCCGGAGA	Index i506	TAAGATTA	TAATCTTA
CDI-015	Index i702	TCCGGAGA	Index i507	ACGTCCTG	CAGGACGT
CDI-016	Index i702	TCCGGAGA	Index i508	GTCAGTAC	GTACTGAC
CDI-017	Index i703	CGCTCATT	Index i501	AGGCTATA	TATAGCCT
CDI-018	Index i703	CGCTCATT	Index i502	GCCTCTAT	ATAGAGGC
CDI-019	Index i703	CGCTCATT	Index i503	AGGATAGG	CCTATCCT
CDI-020	Index i703	CGCTCATT	Index i504	TCAGAGCC	GGCTCTGA
CDI-021	Index i703	CGCTCATT	Index i505	CTTCGCCT	AGGCGAAG
CDI-022	Index i703	CGCTCATT	Index i506	TAAGATTA	TAATCTTA
CDI-023	Index i703	CGCTCATT	Index i507	ACGTCCTG	CAGGACGT
CDI-024	Index i703	CGCTCATT	Index i508	GTCAGTAC	GTACTGAC
CDI-025	Index i704	GAGATTCC	Index i501	AGGCTATA	TATAGCCT
CDI-026	Index i704	GAGATTCC	Index i502	GCCTCTAT	ATAGAGGC
CDI-027	Index i704	GAGATTCC	Index i503	AGGATAGG	CCTATCCT
CDI-028	Index i704	GAGATTCC	Index i504	TCAGAGCC	GGCTCTGA
CDI-029	Index i704	GAGATTCC	Index i505	CTTCGCCT	AGGCGAAG
CDI-030	Index i704	GAGATTCC	Index i506	TAAGATTA	TAATCTTA
CDI-031	Index i704	GAGATTCC	Index i507	ACGTCCTG	CAGGACGT
CDI-032	Index i704	GAGATTCC	Index i508	GTCAGTAC	GTACTGAC
CDI-033	Index i705	ATTCAGAA	Index i501	AGGCTATA	TATAGCCT
CDI-034	Index i705	ATTCAGAA	Index i502	GCCTCTAT	ATAGAGGC
CDI-035	Index i705	ATTCAGAA	Index i503	AGGATAGG	CCTATCCT

CDI-036	Index i705	ATTCAGAA	Index i504	TCAGAGCC	GGCTCTGA
CDI-037	Index i705	ATTCAGAA	Index i505	CTTCGCCT	AGGCGAAG
CDI-038	Index i705	ATTCAGAA	Index i506	TAAGATTA	TAATCTTA
CDI-039	Index i705	ATTCAGAA	Index i507	ACGTCCTG	CAGGACGT
CDI-040	Index i705	ATTCAGAA	Index i508	GTCAGTAC	GTACTGAC
CDI-041	Index i706	GAATTCGT	Index i501	AGGCTATA	TATAGCCT
CDI-042	Index i706	GAATTCGT	Index i502	GCCTCTAT	ATAGAGGC
CDI-043	Index i706	GAATTCGT	Index i503	AGGATAGG	CCTATCCT
CDI-044	Index i706	GAATTCGT	Index i504	TCAGAGCC	GGCTCTGA
CDI-045	Index i706	GAATTCGT	Index i505	CTTCGCCT	AGGCGAAG
CDI-046	Index i706	GAATTCGT	Index i506	TAAGATTA	TAATCTTA
CDI-047	Index i706	GAATTCGT	Index i507	ACGTCCTG	CAGGACGT
CDI-048	Index i706	GAATTCGT	Index i508	GTCAGTAC	GTACTGAC
CDI-049	Index i707	CTGAAGCT	Index i501	AGGCTATA	TATAGCCT
CDI-050	Index i707	CTGAAGCT	Index i502	GCCTCTAT	ATAGAGGC
CDI-051	Index i707	CTGAAGCT	Index i503	AGGATAGG	CCTATCCT
CDI-052	Index i707	CTGAAGCT	Index i504	TCAGAGCC	GGCTCTGA
CDI-053	Index i707	CTGAAGCT	Index i505	CTTCGCCT	AGGCGAAG
CDI-054	Index i707	CTGAAGCT	Index i506	TAAGATTA	TAATCTTA
CDI-055	Index i707	CTGAAGCT	Index i507	ACGTCCTG	CAGGACGT
CDI-056	Index i707	CTGAAGCT	Index i508	GTCAGTAC	GTACTGAC
CDI-057	Index i708	TAATGCGC	Index i501	AGGCTATA	TATAGCCT
CDI-058	Index i708	TAATGCGC	Index i502	GCCTCTAT	ATAGAGGC
CDI-059	Index i708	TAATGCGC	Index i503	AGGATAGG	CCTATCCT
CDI-060	Index i708	TAATGCGC	Index i504	TCAGAGCC	GGCTCTGA
CDI-061	Index i708	TAATGCGC	Index i505	CTTCGCCT	AGGCGAAG
CDI-062	Index i708	TAATGCGC	Index i506	TAAGATTA	TAATCTTA

CDI-063	Index i708	TAATGCGC	Index i507	ACGTCTCTG	CAGGACGT
CDI-064	Index i708	TAATGCGC	Index i508	GTCAGTAC	GTACTGAC
CDI-065	Index i709	CGGCTATG	Index i501	AGGCTATA	TATAGCCT
CDI-066	Index i709	CGGCTATG	Index i502	GCCTCTAT	ATAGAGGC
CDI-067	Index i709	CGGCTATG	Index i503	AGGATAGG	CCTATCCT
CDI-068	Index i709	CGGCTATG	Index i504	TCAGAGCC	GGCTCTGA
CDI-069	Index i709	CGGCTATG	Index i505	CTTCGCCT	AGGCGAAG
CDI-070	Index i709	CGGCTATG	Index i506	TAAGATTA	TAATCTTA
CDI-071	Index i709	CGGCTATG	Index i507	ACGTCTCTG	CAGGACGT
CDI-072	Index i709	CGGCTATG	Index i508	GTCAGTAC	GTACTGAC
CDI-073	Index i710	TCCGCGAA	Index i501	AGGCTATA	TATAGCCT
CDI-074	Index i710	TCCGCGAA	Index i502	GCCTCTAT	ATAGAGGC
CDI-075	Index i710	TCCGCGAA	Index i503	AGGATAGG	CCTATCCT
CDI-076	Index i710	TCCGCGAA	Index i504	TCAGAGCC	GGCTCTGA
CDI-077	Index i710	TCCGCGAA	Index i505	CTTCGCCT	AGGCGAAG
CDI-078	Index i710	TCCGCGAA	Index i506	TAAGATTA	TAATCTTA
CDI-079	Index i710	TCCGCGAA	Index i507	ACGTCTCTG	CAGGACGT
CDI-080	Index i710	TCCGCGAA	Index i508	GTCAGTAC	GTACTGAC
CDI-081	Index i711	TCTCGCGC	Index i501	AGGCTATA	TATAGCCT
CDI-082	Index i711	TCTCGCGC	Index i502	GCCTCTAT	ATAGAGGC
CDI-083	Index i711	TCTCGCGC	Index i503	AGGATAGG	CCTATCCT
CDI-084	Index i711	TCTCGCGC	Index i504	TCAGAGCC	GGCTCTGA
CDI-085	Index i711	TCTCGCGC	Index i505	CTTCGCCT	AGGCGAAG
CDI-086	Index i711	TCTCGCGC	Index i506	TAAGATTA	TAATCTTA
CDI-087	Index i711	TCTCGCGC	Index i507	ACGTCTCTG	CAGGACGT
CDI-088	Index i711	TCTCGCGC	Index i508	GTCAGTAC	GTACTGAC
CDI-089	Index i712	AGCGATAG	Index i501	AGGCTATA	TATAGCCT

CDI-090	Index i712	AGCGATAG	Index i502	GCCTCTAT	ATAGAGGC
CDI-091	Index i712	AGCGATAG	Index i503	AGGATAGG	CCTATCCT
CDI-092	Index i712	AGCGATAG	Index i504	TCAGAGCC	GGCTCTGA
CDI-093	Index i712	AGCGATAG	Index i505	CTTCGCCT	AGGCGAAG
CDI-094	Index i712	AGCGATAG	Index i506	TAAGATTA	TAATCTTA
CDI-095	Index i712	AGCGATAG	Index i507	ACGTCCTG	CAGGACGT
CDI-096	Index i712	AGCGATAG	Index i508	GTCAGTAC	GTACTIONG
CDI-097	Index i713	TAAGGCGA	Index i501	AGGCTATA	TATAGCCT
CDI-098	Index i713	TAAGGCGA	Index i502	GCCTCTAT	ATAGAGGC
CDI-099	Index i713	TAAGGCGA	Index i503	AGGATAGG	CCTATCCT
CDI-100	Index i713	TAAGGCGA	Index i504	TCAGAGCC	GGCTCTGA
CDI-101	Index i713	TAAGGCGA	Index i505	CTTCGCCT	AGGCGAAG
CDI-102	Index i713	TAAGGCGA	Index i506	TAAGATTA	TAATCTTA
CDI-103	Index i713	TAAGGCGA	Index i507	ACGTCCTG	CAGGACGT
CDI-104	Index i713	TAAGGCGA	Index i508	GTCAGTAC	GTACTIONG
CDI-105	Index i714	CGTACTAG	Index i501	AGGCTATA	TATAGCCT
CDI-106	Index i714	CGTACTAG	Index i502	GCCTCTAT	ATAGAGGC
CDI-107	Index i714	CGTACTAG	Index i503	AGGATAGG	CCTATCCT
CDI-108	Index i714	CGTACTAG	Index i504	TCAGAGCC	GGCTCTGA
CDI-109	Index i714	CGTACTAG	Index i505	CTTCGCCT	AGGCGAAG
CDI-110	Index i714	CGTACTAG	Index i506	TAAGATTA	TAATCTTA
CDI-111	Index i714	CGTACTAG	Index i507	ACGTCCTG	CAGGACGT
CDI-112	Index i714	CGTACTAG	Index i508	GTCAGTAC	GTACTIONG
CDI-113	Index i715	AGGCAGAA	Index i501	AGGCTATA	TATAGCCT
CDI-114	Index i715	AGGCAGAA	Index i502	GCCTCTAT	ATAGAGGC
CDI-115	Index i715	AGGCAGAA	Index i503	AGGATAGG	CCTATCCT
CDI-116	Index i715	AGGCAGAA	Index i504	TCAGAGCC	GGCTCTGA

CDI-117	Index i715	AGGCAGAA	Index i505	CTTCGCCT	AGGCGAAG
CDI-118	Index i715	AGGCAGAA	Index i506	TAAGATTA	TAATCTTA
CDI-119	Index i715	AGGCAGAA	Index i507	ACGTCTCG	CAGGACGT
CDI-120	Index i715	AGGCAGAA	Index i508	GTCAGTAC	GTACTGAC
CDI-121	Index i716	TCCTGAGC	Index i501	AGGCTATA	TATAGCCT
CDI-122	Index i716	TCCTGAGC	Index i502	GCCTCTAT	ATAGAGGC
CDI-123	Index i716	TCCTGAGC	Index i503	AGGATAGG	CCTATCCT
CDI-124	Index i716	TCCTGAGC	Index i504	TCAGAGCC	GGCTCTGA
CDI-125	Index i716	TCCTGAGC	Index i505	CTTCGCCT	AGGCGAAG
CDI-126	Index i716	TCCTGAGC	Index i506	TAAGATTA	TAATCTTA
CDI-127	Index i716	TCCTGAGC	Index i507	ACGTCTCG	CAGGACGT
CDI-128	Index i716	TCCTGAGC	Index i508	GTCAGTAC	GTACTGAC
CDI-129	Index i701	ATTACTCG	Index i509	CTCTCTAT	ATAGAGAG
CDI-130	Index i701	ATTACTCG	Index i510	TATCCTCT	AGAGGATA
CDI-131	Index i701	ATTACTCG	Index i511	GTAAGGAG	CTCCTTAC
CDI-132	Index i701	ATTACTCG	Index i512	ACTGCATA	TATGCAGT
CDI-133	Index i701	ATTACTCG	Index i513	AAGGAGTA	TACTCCTT
CDI-134	Index i701	ATTACTCG	Index i514	CTAAGCCT	AGGCTTAG
CDI-135	Index i701	ATTACTCG	Index i515	CGTCTAAT	ATTAGACG
CDI-136	Index i701	ATTACTCG	Index i516	TCTCTCCG	CGGAGAGA
CDI-137	Index i702	TCCGGAGA	Index i509	CTCTCTAT	ATAGAGAG
CDI-138	Index i702	TCCGGAGA	Index i510	TATCCTCT	AGAGGATA
CDI-139	Index i702	TCCGGAGA	Index i511	GTAAGGAG	CTCCTTAC
CDI-140	Index i702	TCCGGAGA	Index i512	ACTGCATA	TATGCAGT
CDI-141	Index i702	TCCGGAGA	Index i513	AAGGAGTA	TACTCCTT
CDI-142	Index i702	TCCGGAGA	Index i514	CTAAGCCT	AGGCTTAG
CDI-143	Index i702	TCCGGAGA	Index i515	CGTCTAAT	ATTAGACG

CDI-144	Index i702	TCCGGAGA	Index i516	TCTCTCCG	CGGAGAGA
CDI-145	Index i703	CGCTCATT	Index i509	CTCTCTAT	ATAGAGAG
CDI-146	Index i703	CGCTCATT	Index i510	TATCCTCT	AGAGGATA
CDI-147	Index i703	CGCTCATT	Index i511	GTAAGGAG	CTCCTTAC
CDI-148	Index i703	CGCTCATT	Index i512	ACTGCATA	TATGCAGT
CDI-149	Index i703	CGCTCATT	Index i513	AAGGAGTA	TACTCCTT
CDI-150	Index i703	CGCTCATT	Index i514	CTAAGCCT	AGGCTTAG
CDI-151	Index i703	CGCTCATT	Index i515	CGTCTAAT	ATTAGACG
CDI-152	Index i703	CGCTCATT	Index i516	TCTCTCCG	CGGAGAGA
CDI-153	Index i704	GAGATTCC	Index i509	CTCTCTAT	ATAGAGAG
CDI-154	Index i704	GAGATTCC	Index i510	TATCCTCT	AGAGGATA
CDI-155	Index i704	GAGATTCC	Index i511	GTAAGGAG	CTCCTTAC
CDI-156	Index i704	GAGATTCC	Index i512	ACTGCATA	TATGCAGT
CDI-157	Index i704	GAGATTCC	Index i513	AAGGAGTA	TACTCCTT
CDI-158	Index i704	GAGATTCC	Index i514	CTAAGCCT	AGGCTTAG
CDI-159	Index i704	GAGATTCC	Index i515	CGTCTAAT	ATTAGACG
CDI-160	Index i704	GAGATTCC	Index i516	TCTCTCCG	CGGAGAGA
CDI-161	Index i705	ATTCAGAA	Index i509	CTCTCTAT	ATAGAGAG
CDI-162	Index i705	ATTCAGAA	Index i510	TATCCTCT	AGAGGATA
CDI-163	Index i705	ATTCAGAA	Index i511	GTAAGGAG	CTCCTTAC
CDI-164	Index i705	ATTCAGAA	Index i512	ACTGCATA	TATGCAGT
CDI-165	Index i705	ATTCAGAA	Index i513	AAGGAGTA	TACTCCTT
CDI-166	Index i705	ATTCAGAA	Index i514	CTAAGCCT	AGGCTTAG
CDI-167	Index i705	ATTCAGAA	Index i515	CGTCTAAT	ATTAGACG
CDI-168	Index i705	ATTCAGAA	Index i516	TCTCTCCG	CGGAGAGA
CDI-169	Index i706	GAATTCGT	Index i509	CTCTCTAT	ATAGAGAG
CDI-170	Index i706	GAATTCGT	Index i510	TATCCTCT	AGAGGATA

CDI-171	Index i706	GAATTCGT	Index i511	GTAAGGAG	CTCCTTAC
CDI-172	Index i706	GAATTCGT	Index i512	ACTGCATA	TATGCAGT
CDI-173	Index i706	GAATTCGT	Index i513	AAGGAGTA	TACTCCTT
CDI-174	Index i706	GAATTCGT	Index i514	CTAAGCCT	AGGCTTAG
CDI-175	Index i706	GAATTCGT	Index i515	CGTCTAAT	ATTAGACG
CDI-176	Index i706	GAATTCGT	Index i516	TCTCTCCG	CGGAGAGA
CDI-177	Index i707	CTGAAGCT	Index i509	CTCTCTAT	ATAGAGAG
CDI-178	Index i707	CTGAAGCT	Index i510	TATCCTCT	AGAGGATA
CDI-179	Index i707	CTGAAGCT	Index i511	GTAAGGAG	CTCCTTAC
CDI-180	Index i707	CTGAAGCT	Index i512	ACTGCATA	TATGCAGT
CDI-181	Index i707	CTGAAGCT	Index i513	AAGGAGTA	TACTCCTT
CDI-182	Index i707	CTGAAGCT	Index i514	CTAAGCCT	AGGCTTAG
CDI-183	Index i707	CTGAAGCT	Index i515	CGTCTAAT	ATTAGACG
CDI-184	Index i707	CTGAAGCT	Index i516	TCTCTCCG	CGGAGAGA
CDI-185	Index i708	TAATGCGC	Index i509	CTCTCTAT	ATAGAGAG
CDI-186	Index i708	TAATGCGC	Index i510	TATCCTCT	AGAGGATA
CDI-187	Index i708	TAATGCGC	Index i511	GTAAGGAG	CTCCTTAC
CDI-188	Index i708	TAATGCGC	Index i512	ACTGCATA	TATGCAGT
CDI-189	Index i708	TAATGCGC	Index i513	AAGGAGTA	TACTCCTT
CDI-190	Index i708	TAATGCGC	Index i514	CTAAGCCT	AGGCTTAG
CDI-191	Index i708	TAATGCGC	Index i515	CGTCTAAT	ATTAGACG
CDI-192	Index i708	TAATGCGC	Index i516	TCTCTCCG	CGGAGAGA
CDI-193	Index i709	CGGCTATG	Index i509	CTCTCTAT	ATAGAGAG
CDI-194	Index i709	CGGCTATG	Index i510	TATCCTCT	AGAGGATA
CDI-195	Index i709	CGGCTATG	Index i511	GTAAGGAG	CTCCTTAC
CDI-196	Index i709	CGGCTATG	Index i512	ACTGCATA	TATGCAGT
CDI-197	Index i709	CGGCTATG	Index i513	AAGGAGTA	TACTCCTT

CDI-198	Index i709	CGGCTATG	Index i514	CTAAGCCT	AGGCTTAG
CDI-199	Index i709	CGGCTATG	Index i515	CGTCTAAT	ATTAGACG
CDI-200	Index i709	CGGCTATG	Index i516	TCTCTCCG	CGGAGAGA
CDI-201	Index i710	TCCGCGAA	Index i509	CTCTCTAT	ATAGAGAG
CDI-202	Index i710	TCCGCGAA	Index i510	TATCCTCT	AGAGGATA
CDI-203	Index i710	TCCGCGAA	Index i511	GTAAGGAG	CTCCTTAC
CDI-204	Index i710	TCCGCGAA	Index i512	ACTGCATA	TATGCAGT
CDI-205	Index i710	TCCGCGAA	Index i513	AAGGAGTA	TACTCCTT
CDI-206	Index i710	TCCGCGAA	Index i514	CTAAGCCT	AGGCTTAG
CDI-207	Index i710	TCCGCGAA	Index i515	CGTCTAAT	ATTAGACG
CDI-208	Index i710	TCCGCGAA	Index i516	TCTCTCCG	CGGAGAGA
CDI-209	Index i711	TCTCGCGC	Index i509	CTCTCTAT	ATAGAGAG
CDI-210	Index i711	TCTCGCGC	Index i510	TATCCTCT	AGAGGATA
CDI-211	Index i711	TCTCGCGC	Index i511	GTAAGGAG	CTCCTTAC
CDI-212	Index i711	TCTCGCGC	Index i512	ACTGCATA	TATGCAGT
CDI-213	Index i711	TCTCGCGC	Index i513	AAGGAGTA	TACTCCTT
CDI-214	Index i711	TCTCGCGC	Index i514	CTAAGCCT	AGGCTTAG
CDI-215	Index i711	TCTCGCGC	Index i515	CGTCTAAT	ATTAGACG
CDI-216	Index i711	TCTCGCGC	Index i516	TCTCTCCG	CGGAGAGA
CDI-217	Index i712	AGCGATAG	Index i509	CTCTCTAT	ATAGAGAG
CDI-218	Index i712	AGCGATAG	Index i510	TATCCTCT	AGAGGATA
CDI-219	Index i712	AGCGATAG	Index i511	GTAAGGAG	CTCCTTAC
CDI-220	Index i712	AGCGATAG	Index i512	ACTGCATA	TATGCAGT
CDI-221	Index i712	AGCGATAG	Index i513	AAGGAGTA	TACTCCTT
CDI-222	Index i712	AGCGATAG	Index i514	CTAAGCCT	AGGCTTAG
CDI-223	Index i712	AGCGATAG	Index i515	CGTCTAAT	ATTAGACG
CDI-224	Index i712	AGCGATAG	Index i516	TCTCTCCG	CGGAGAGA

CDI-225	Index i713	TAAGGCGA	Index i509	CTCTCTAT	ATAGAGAG
CDI-226	Index i713	TAAGGCGA	Index i510	TATCCTCT	AGAGGATA
CDI-227	Index i713	TAAGGCGA	Index i511	GTAAGGAG	CTCCTTAC
CDI-228	Index i713	TAAGGCGA	Index i512	ACTGCATA	TATGCAGT
CDI-229	Index i713	TAAGGCGA	Index i513	AAGGAGTA	TACTCCTT
CDI-230	Index i713	TAAGGCGA	Index i514	CTAAGCCT	AGGCTTAG
CDI-231	Index i713	TAAGGCGA	Index i515	CGTCTAAT	ATTAGACG
CDI-232	Index i713	TAAGGCGA	Index i516	TCTCTCCG	CGGAGAGA
CDI-233	Index i714	CGTACTAG	Index i509	CTCTCTAT	ATAGAGAG
CDI-234	Index i714	CGTACTAG	Index i510	TATCCTCT	AGAGGATA
CDI-235	Index i714	CGTACTAG	Index i511	GTAAGGAG	CTCCTTAC
CDI-236	Index i714	CGTACTAG	Index i512	ACTGCATA	TATGCAGT
CDI-237	Index i714	CGTACTAG	Index i513	AAGGAGTA	TACTCCTT
CDI-238	Index i714	CGTACTAG	Index i514	CTAAGCCT	AGGCTTAG
CDI-239	Index i714	CGTACTAG	Index i515	CGTCTAAT	ATTAGACG
CDI-240	Index i714	CGTACTAG	Index i516	TCTCTCCG	CGGAGAGA
CDI-241	Index i715	AGGCAGAA	Index i509	CTCTCTAT	ATAGAGAG
CDI-242	Index i715	AGGCAGAA	Index i510	TATCCTCT	AGAGGATA
CDI-243	Index i715	AGGCAGAA	Index i511	GTAAGGAG	CTCCTTAC
CDI-244	Index i715	AGGCAGAA	Index i512	ACTGCATA	TATGCAGT
CDI-245	Index i715	AGGCAGAA	Index i513	AAGGAGTA	TACTCCTT
CDI-246	Index i715	AGGCAGAA	Index i514	CTAAGCCT	AGGCTTAG
CDI-247	Index i715	AGGCAGAA	Index i515	CGTCTAAT	ATTAGACG
CDI-248	Index i715	AGGCAGAA	Index i516	TCTCTCCG	CGGAGAGA
CDI-249	Index i716	TCCTGAGC	Index i509	CTCTCTAT	ATAGAGAG
CDI-250	Index i716	TCCTGAGC	Index i510	TATCCTCT	AGAGGATA
CDI-251	Index i716	TCCTGAGC	Index i511	GTAAGGAG	CTCCTTAC

CDI-252	Index i716	TCCTGAGC	Index i512	ACTGCATA	TATGCAGT
CDI-253	Index i716	TCCTGAGC	Index i513	AAGGAGTA	TACTCCTT
CDI-254	Index i716	TCCTGAGC	Index i514	CTAAGCCT	AGGCTTAG
CDI-255	Index i716	TCCTGAGC	Index i515	CGTCTAAT	ATTAGACG
CDI-256	Index i716	TCCTGAGC	Index i516	TCTCTCCG	CGGAGAGA
CDI-257	Index i701	ATTACTCG	Index i517	TCGACTAG	CTAGTCGA
CDI-258	Index i701	ATTACTCG	Index i518	TTCTAGCT	AGCTAGAA
CDI-259	Index i701	ATTACTCG	Index i519	CCTAGAGT	ACTCTAGG
CDI-260	Index i701	ATTACTCG	Index i520	GCGTAAGA	TCTTACGC
CDI-261	Index i701	ATTACTCG	Index i521	CTATTAAG	CTTAATAG
CDI-262	Index i701	ATTACTCG	Index i522	AAGGCTAT	ATAGCCTT
CDI-263	Index i701	ATTACTCG	Index i523	GAGCCTTA	TAAGGCTC
CDI-264	Index i701	ATTACTCG	Index i524	TTATGCGA	TCGCATAA
CDI-265	Index i702	TCCGGAGA	Index i517	TCGACTAG	CTAGTCGA
CDI-266	Index i702	TCCGGAGA	Index i518	TTCTAGCT	AGCTAGAA
CDI-267	Index i702	TCCGGAGA	Index i519	CCTAGAGT	ACTCTAGG
CDI-268	Index i702	TCCGGAGA	Index i520	GCGTAAGA	TCTTACGC
CDI-269	Index i702	TCCGGAGA	Index i521	CTATTAAG	CTTAATAG
CDI-270	Index i702	TCCGGAGA	Index i522	AAGGCTAT	ATAGCCTT
CDI-271	Index i702	TCCGGAGA	Index i523	GAGCCTTA	TAAGGCTC
CDI-272	Index i702	TCCGGAGA	Index i524	TTATGCGA	TCGCATAA
CDI-273	Index i703	CGCTCATT	Index i517	TCGACTAG	CTAGTCGA
CDI-274	Index i703	CGCTCATT	Index i518	TTCTAGCT	AGCTAGAA
CDI-275	Index i703	CGCTCATT	Index i519	CCTAGAGT	ACTCTAGG
CDI-276	Index i703	CGCTCATT	Index i520	GCGTAAGA	TCTTACGC
CDI-277	Index i703	CGCTCATT	Index i521	CTATTAAG	CTTAATAG
CDI-278	Index i703	CGCTCATT	Index i522	AAGGCTAT	ATAGCCTT

CDI-279	Index i703	CGCTCATT	Index i523	GAGCCTTA	TAAGGCTC
CDI-280	Index i703	CGCTCATT	Index i524	TTATGCGA	TCGCATAA
CDI-281	Index i704	GAGATTCC	Index i517	TCGACTAG	CTAGTCGA
CDI-282	Index i704	GAGATTCC	Index i518	TTCTAGCT	AGCTAGAA
CDI-283	Index i704	GAGATTCC	Index i519	CCTAGAGT	ACTCTAGG
CDI-284	Index i704	GAGATTCC	Index i520	GCGTAAGA	TCTTACGC
CDI-285	Index i704	GAGATTCC	Index i521	CTATTAAG	CTTAATAG
CDI-286	Index i704	GAGATTCC	Index i522	AAGGCTAT	ATAGCCTT
CDI-287	Index i704	GAGATTCC	Index i523	GAGCCTTA	TAAGGCTC
CDI-288	Index i704	GAGATTCC	Index i524	TTATGCGA	TCGCATAA
CDI-289	Index i705	ATTCAGAA	Index i517	TCGACTAG	CTAGTCGA
CDI-290	Index i705	ATTCAGAA	Index i518	TTCTAGCT	AGCTAGAA
CDI-291	Index i705	ATTCAGAA	Index i519	CCTAGAGT	ACTCTAGG
CDI-292	Index i705	ATTCAGAA	Index i520	GCGTAAGA	TCTTACGC
CDI-293	Index i705	ATTCAGAA	Index i521	CTATTAAG	CTTAATAG
CDI-294	Index i705	ATTCAGAA	Index i522	AAGGCTAT	ATAGCCTT
CDI-295	Index i705	ATTCAGAA	Index i523	GAGCCTTA	TAAGGCTC
CDI-296	Index i705	ATTCAGAA	Index i524	TTATGCGA	TCGCATAA
CDI-297	Index i706	GAATTCGT	Index i517	TCGACTAG	CTAGTCGA
CDI-298	Index i706	GAATTCGT	Index i518	TTCTAGCT	AGCTAGAA
CDI-299	Index i706	GAATTCGT	Index i519	CCTAGAGT	ACTCTAGG
CDI-300	Index i706	GAATTCGT	Index i520	GCGTAAGA	TCTTACGC
CDI-301	Index i706	GAATTCGT	Index i521	CTATTAAG	CTTAATAG
CDI-302	Index i706	GAATTCGT	Index i522	AAGGCTAT	ATAGCCTT
CDI-303	Index i706	GAATTCGT	Index i523	GAGCCTTA	TAAGGCTC
CDI-304	Index i706	GAATTCGT	Index i524	TTATGCGA	TCGCATAA
CDI-305	Index i707	CTGAAGCT	Index i517	TCGACTAG	CTAGTCGA

CDI-306	Index i707	CTGAAGCT	Index i518	TTCTAGCT	AGCTAGAA
CDI-307	Index i707	CTGAAGCT	Index i519	CCTAGAGT	ACTCTAGG
CDI-308	Index i707	CTGAAGCT	Index i520	GCGTAAGA	TCTTACGC
CDI-309	Index i707	CTGAAGCT	Index i521	CTATTAAG	CTTAATAG
CDI-310	Index i707	CTGAAGCT	Index i522	AAGGCTAT	ATAGCCTT
CDI-311	Index i707	CTGAAGCT	Index i523	GAGCCTTA	TAAGGCTC
CDI-312	Index i707	CTGAAGCT	Index i524	TTATGCGA	TCGCATAA
CDI-313	Index i708	TAATGCGC	Index i517	TCGACTAG	CTAGTCGA
CDI-314	Index i708	TAATGCGC	Index i518	TTCTAGCT	AGCTAGAA
CDI-315	Index i708	TAATGCGC	Index i519	CCTAGAGT	ACTCTAGG
CDI-316	Index i708	TAATGCGC	Index i520	GCGTAAGA	TCTTACGC
CDI-317	Index i708	TAATGCGC	Index i521	CTATTAAG	CTTAATAG
CDI-318	Index i708	TAATGCGC	Index i522	AAGGCTAT	ATAGCCTT
CDI-319	Index i708	TAATGCGC	Index i523	GAGCCTTA	TAAGGCTC
CDI-320	Index i708	TAATGCGC	Index i524	TTATGCGA	TCGCATAA
CDI-321	Index i709	CGGCTATG	Index i517	TCGACTAG	CTAGTCGA
CDI-322	Index i709	CGGCTATG	Index i518	TTCTAGCT	AGCTAGAA
CDI-323	Index i709	CGGCTATG	Index i519	CCTAGAGT	ACTCTAGG
CDI-324	Index i709	CGGCTATG	Index i520	GCGTAAGA	TCTTACGC
CDI-325	Index i709	CGGCTATG	Index i521	CTATTAAG	CTTAATAG
CDI-326	Index i709	CGGCTATG	Index i522	AAGGCTAT	ATAGCCTT
CDI-327	Index i709	CGGCTATG	Index i523	GAGCCTTA	TAAGGCTC
CDI-328	Index i709	CGGCTATG	Index i524	TTATGCGA	TCGCATAA
CDI-329	Index i710	TCCGCGAA	Index i517	TCGACTAG	CTAGTCGA
CDI-330	Index i710	TCCGCGAA	Index i518	TTCTAGCT	AGCTAGAA
CDI-331	Index i710	TCCGCGAA	Index i519	CCTAGAGT	ACTCTAGG
CDI-332	Index i710	TCCGCGAA	Index i520	GCGTAAGA	TCTTACGC

CDI-333	Index i710	TCCGCGAA	Index i521	CTATTAAG	CTTAATAG
CDI-334	Index i710	TCCGCGAA	Index i522	AAGGCTAT	ATAGCCTT
CDI-335	Index i710	TCCGCGAA	Index i523	GAGCCTTA	TAAGGCTC
CDI-336	Index i710	TCCGCGAA	Index i524	TTATGCGA	TCGCATAA
CDI-337	Index i711	TCTCGCGC	Index i517	TCGACTAG	CTAGTCGA
CDI-338	Index i711	TCTCGCGC	Index i518	TTCTAGCT	AGCTAGAA
CDI-339	Index i711	TCTCGCGC	Index i519	CCTAGAGT	ACTCTAGG
CDI-340	Index i711	TCTCGCGC	Index i520	GCGTAAGA	TCTTACGC
CDI-341	Index i711	TCTCGCGC	Index i521	CTATTAAG	CTTAATAG
CDI-342	Index i711	TCTCGCGC	Index i522	AAGGCTAT	ATAGCCTT
CDI-343	Index i711	TCTCGCGC	Index i523	GAGCCTTA	TAAGGCTC
CDI-344	Index i711	TCTCGCGC	Index i524	TTATGCGA	TCGCATAA
CDI-345	Index i712	AGCGATAG	Index i517	TCGACTAG	CTAGTCGA
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CDI-347	Index i712	AGCGATAG	Index i519	CCTAGAGT	ACTCTAGG
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CDI-352	Index i712	AGCGATAG	Index i524	TTATGCGA	TCGCATAA
CDI-353	Index i713	TAAGGCGA	Index i517	TCGACTAG	CTAGTCGA
CDI-354	Index i713	TAAGGCGA	Index i518	TTCTAGCT	AGCTAGAA
CDI-355	Index i713	TAAGGCGA	Index i519	CCTAGAGT	ACTCTAGG
CDI-356	Index i713	TAAGGCGA	Index i520	GCGTAAGA	TCTTACGC
CDI-357	Index i713	TAAGGCGA	Index i521	CTATTAAG	CTTAATAG
CDI-358	Index i713	TAAGGCGA	Index i522	AAGGCTAT	ATAGCCTT
CDI-359	Index i713	TAAGGCGA	Index i523	GAGCCTTA	TAAGGCTC

CDI-360	Index i713	TAAGGCGA	Index i524	TTATGCGA	TCGCATAA
CDI-361	Index i714	CGTACTAG	Index i517	TCGACTAG	CTAGTCGA
CDI-362	Index i714	CGTACTAG	Index i518	TTCTAGCT	AGCTAGAA
CDI-363	Index i714	CGTACTAG	Index i519	CCTAGAGT	ACTCTAGG
CDI-364	Index i714	CGTACTAG	Index i520	GCGTAAGA	TCTTACGC
CDI-365	Index i714	CGTACTAG	Index i521	CTATTAAG	CTTAATAG
CDI-366	Index i714	CGTACTAG	Index i522	AAGGCTAT	ATAGCCTT
CDI-367	Index i714	CGTACTAG	Index i523	GAGCCTTA	TAAGGCTC
CDI-368	Index i714	CGTACTAG	Index i524	TTATGCGA	TCGCATAA
CDI-369	Index i715	AGGCAGAA	Index i517	TCGACTAG	CTAGTCGA
CDI-370	Index i715	AGGCAGAA	Index i518	TTCTAGCT	AGCTAGAA
CDI-371	Index i715	AGGCAGAA	Index i519	CCTAGAGT	ACTCTAGG
CDI-372	Index i715	AGGCAGAA	Index i520	GCGTAAGA	TCTTACGC
CDI-373	Index i715	AGGCAGAA	Index i521	CTATTAAG	CTTAATAG
CDI-374	Index i715	AGGCAGAA	Index i522	AAGGCTAT	ATAGCCTT
CDI-375	Index i715	AGGCAGAA	Index i523	GAGCCTTA	TAAGGCTC
CDI-376	Index i715	AGGCAGAA	Index i524	TTATGCGA	TCGCATAA
CDI-377	Index i716	TCCTGAGC	Index i517	TCGACTAG	CTAGTCGA
CDI-378	Index i716	TCCTGAGC	Index i518	TTCTAGCT	AGCTAGAA
CDI-379	Index i716	TCCTGAGC	Index i519	CCTAGAGT	ACTCTAGG
CDI-380	Index i716	TCCTGAGC	Index i520	GCGTAAGA	TCTTACGC
CDI-381	Index i716	TCCTGAGC	Index i521	CTATTAAG	CTTAATAG
CDI-382	Index i716	TCCTGAGC	Index i522	AAGGCTAT	ATAGCCTT
CDI-383	Index i716	TCCTGAGC	Index i523	GAGCCTTA	TAAGGCTC
CDI-384	Index i716	TCCTGAGC	Index i524	TTATGCGA	TCGCATAA