Additional file 1: Table S1. Characteristics of patients and healthy controls enrolled in this study.
A. Plasma samples in study of miRNA biomarker selection collected from Shenzhen People's Hospital (Shenzhen, China).
colorectal cancer

| number | age | gender | TNM |
| :---: | :---: | :---: | :---: |
| 1 | 57 | male | I |
| 2 | 33 | female | I |
| 3 | 55 | male | I |
| 4 | 54 | male | I |
| 5 | 46 | male | I |
| 6 | 56 | female | I |
| 7 | 58 | female | I |
| 8 | 62 | female | I |
| 9 | 79 | female | I |
| 10 | 57 | male | I |
| 11 | 77 | male | I |
| 12 | 61 | female | I |
| 13 | 49 | female | I |
| 14 | 77 | female | I |
| 15 | 61 | female | I |
| 16 | 49 | female | I |
| 17 | 63 | female | I |
| 18 | 56 | female | I |
| 19 | 52 | female | I |
| 20 | 65 | male | I |
| 21 | 69 | female | I |
| 22 | 63 | male | I |
| 23 | 68 | female | I |
| 24 | 50 | female | I |
| 25 | 52 | female | I |
| 26 | 72 | male | I |
| 27 | 77 | male | I |
| 28 | 60 | male | I |
| 29 | 71 | female | I |
| 30 | 60 | female | I |
| 31 | 43 | female | I |
| 32 | 76 | male | I |
| 33 | 65 | male | I |
| 34 | 79 | female | I |
| 35 | 75 | female | I |
| 36 | 60 | male | I |
| 37 | 57 | female | I |
| 38 | 60 | male | I |
| 39 | 61 | male | I |
| 40 | 70 | male | I |
| 41 | 67 | female | I |
| 42 | 57 | female | I |
| 43 | 51 | female | I |
| 44 | 73 | female | I A |

healthy

| number | gender | age |
| :---: | :---: | :---: |
| 1 | male | 57 |
| 2 | female | 36 |
| 3 | male | 55 |
| 4 | male | 54 |
| 5 | male | 48 |
| 6 | female | 58 |
| 7 | female | 59 |
| 8 | female | 62 |
| 9 | female | 77 |
| 10 | male | 44 |
| 11 | female | 81 |
| 12 | female | 55 |
| 13 | male | 49 |
| 14 | female | 61 |
| 15 | female | 81 |
| 16 | female | 62 |
| 17 | female | 58 |
| 18 | female | 62 |
| 19 | male | 64 |
| 20 | male | 39 |
| 21 | male | 57 |
| 22 | male | 65 |
| 23 | male | 54 |
| 24 | male | 56 |
| 25 | male | 81 |
| 26 | male | 57 |
| 27 | female | 58 |
| 28 | female | 57 |
| 29 | female | 60 |
| 30 | male | 73 |
| 31 | male | 67 |
| 32 | female | 66 |
| 33 | female | 73 |
| 34 | female | 68 |
| 35 | male | 58 |
| 36 | male | 67 |
| 37 | female | 59 |
| 38 | male | 55 |
| 39 | female | 66 |
| 40 | male | 61 |
| 41 | female | 55 |
| 42 | female | 59 |
| 43 | female | 58 |
| 44 | female | 59 |


| 45 | 38 | female | I A |
| :---: | :---: | :---: | :---: |
| 46 | 57 | male | I A |
| 47 | 61 | female | I A |
| 48 | 70 | male | I A |
| 49 | 76 | female | I A |
| 50 | 56 | female | I A |
| 51 | 40 | male | I B |
| 52 | 74 | female | I B |
| 53 | 65 | male | I B |
| 54 | 41 | female | II |
| 55 | 38 | female | II |
| 56 | 81 | female | II |
| 57 | 63 | female | II |
| 58 | 58 | female | II |
| 59 | 65 | male | II |
| 60 | 58 | female | II |
| 61 | 58 | female | II |
| 62 | 46 | male | II A |
| 63 | 42 | male | II A |
| 64 | 63 | male | II A |
| 65 | 61 | female | II A |
| 66 | 56 | male | II A |
| 67 | 57 | male | II A |
| 68 | 88 | male | II A |
| 69 | 59 | male | II A |
| 70 | 77 | female | II A |
| 71 | 70 | male | II A |
| 72 | 36 | female | II B |
| 73 | 32 | male | II B |
| 74 | 38 | female | II B |
| 75 | 36 | female | II B |
| 76 | 55 | male | II B |
| 77 | 53 | male | II B |
| 78 | 40 | female | II B |
| 79 | 66 | male | II B |
| 80 | 63 | male | II B |
| 81 | 60 | male | II B |
| 82 | 64 | female | II B |
| 83 | 56 | male | II B |
| 84 | 68 | male | II B |
| 85 | 66 | female | II B |
| 86 | 76 | male | II B |
| 87 | 66 | male | II B |
| 88 | 65 | male | II B |
| 89 | 58 | female | II B |
| 90 | 80 | female | II C |
| 91 | 65 | female | II C |
| 92 | 82 | female | II C |
| 93 | 79 | female | II C |


| 45 | female | 44 |
| :---: | :---: | :---: |
| 46 | male | 63 |
| 47 | male | 58 |
| 48 | male | 60 |
| 49 | male | 55 |
| 50 | male | 54 |
| 51 | male | 46 |
| 52 | female | 72 |
| 53 | female | 78 |
| 54 | female | 55 |
| 55 | female | 46 |
| 56 | female | 56 |
| 57 | female | 57 |
| 58 | male | 56 |
| 59 | female | 56 |
| 60 | female | 56 |
| 61 | male | 56 |
| 62 | male | 49 |
| 63 | male | 46 |
| 64 | male | 64 |
| 65 | female | 62 |
| 66 | female | 56 |
| 67 | male | 54 |
| 68 | female | 55 |
| 69 | female | 58 |
| 70 | male | 61 |
| 71 | male | 64 |
| 72 | female | 37 |
| 73 | male | 37 |
| 74 | female | 46 |
| 75 | female | 37 |
| 76 | male | 55 |
| 77 | male | 53 |
| 78 | female | 48 |
| 79 | male | 59 |
| 80 | male | 55 |
| 81 | female | 69 |
| 82 | male | 55 |
| 83 | male | 56 |
| 84 | male | 54 |
| 85 | male | 78 |
| 86 | male | 71 |
| 87 | female | 75 |
| 88 | male | 59 |
| 89 | male | 67 |
| 90 | female | 61 |
| 91 | female | 70 |
| 92 | female | 70 |
| 93 | female | 83 |


| 94 | 58 | female | IIIA |
| :---: | :---: | :---: | :---: |
| 95 | 37 | male | IIIA |
| 96 | 33 | male | IIIA |
| 97 | 53 | male | IIIA |
| 98 | 78 | female | IIIA |
| 99 | 54 | male | IIIA |
| 100 | 69 | male | IIIA |
| 101 | 81 | male | IIIA |
| 102 | 73 | male | IIIA |
| 103 | 66 | male | IIIA |
| 104 | 50 | female | IIIA |
| 105 | 66 | male | IIIA |
| 106 | 62 | male | IIIA |
| 107 | 70 | male | IIIA |
| 108 | 62 | male | IIIA |
| 109 | 37 | female | IIIB |
| 110 | 74 | female | IIIB |
| 111 | 32 | male | IIIB |
| 112 | 63 | male | IIIB |
| 113 | 65 | male | IIIB |
| 114 | 85 | female | IIIB |
| 115 | 66 | female | IIIB |
| 116 | 66 | male | IIIB |
| 117 | 56 | female | IIIB |
| 118 | 63 | male | IIIB |
| 119 | 45 | female | IIIB |
| 120 | 57 | male | IIIB |
| 121 | 62 | male | IIIB |
| 122 | 49 | female | IIIB |
| 123 | 33 | male | IIIC |
| 124 | 37 | female | IIIC |
| 125 | 27 | male | IIIC |
| 126 | 43 | male | IIIC |
| 127 | 54 | male | IIIC |
| 128 | 45 | male | IIIC |
| 129 | 35 | male | IIIC |
| 130 | 65 | female | IIIC |
| 131 | 72 | male | IIIC |
| 132 | 65 | female | IIIC |
| 133 | 60 | female | IIIC |
| 134 | 50 | female | IIIC |
| 135 | 57 | male | IIIC |
| 136 | 57 | female | IIIC |
| 137 | 36 | female | IV |
| 138 | 45 | male | IV |
| 139 | 60 | female | IV |
| 140 | 47 | male | IV |
| 141 | 49 | female | IV |


| 94 | female | 60 |
| :---: | :---: | :---: |
| 95 | male | 46 |
| 96 | male | 42 |
| 97 | male | 53 |
| 98 | female | 55 |
| 99 | female | 47 |
| 100 | female | 60 |
| 101 | female | 66 |
| 102 | female | 82 |
| 103 | male | 79 |
| 104 | male | 61 |
| 105 | female | 73 |
| 106 | male | 57 |
| 107 | female | 57 |
| 108 | male | 53 |
| 109 | female | 43 |
| 110 | female | 72 |
| 111 | male | 44 |
| 112 | female | 66 |
| 113 | female | 63 |
| 114 | female | 65 |
| 115 | female | 60 |
| 116 | male | 58 |
| 117 | male | 60 |
| 118 | male | 57 |
| 119 | female | 58 |
| 120 | female | 55 |
| 121 | male | 62 |
| 122 | male | 52 |
| 123 | male | 43 |
| 124 | female | 43 |
| 125 | male | 34 |
| 126 | male | 47 |
| 127 | male | 54 |
| 128 | male | 47 |
| 129 | male | 83 |
| 130 | male | 60 |
| 131 | male | 54 |
| 132 | female | 60 |
| 133 | female | 60 |
| 134 | male | 62 |
| 135 | male | 55 |
| 136 | male | 54 |
| 137 | female | 42 |
| 138 | male | 48 |
| 139 | female | 61 |
| 140 | female | 75 |
| 141 | female | 76 |


| 142 | 35 | male | IV |
| :---: | :---: | :---: | :---: |
| 143 | 38 | female | IV |
| 144 | 68 | male | IV |
| 145 | 77 | male | IV |
| 146 | 60 | female | IV |
| 147 | 57 | female | IV A |
| 148 | 30 | male | IV A |
| 149 | 66 | male | IVA |
| 150 | 63 | male | IV A |
| 151 | 58 | female | IV A |
| 152 | 54 | male | IVA |
| 153 | 57 | female | IV A |
| 154 | 53 | female | IVA |
| 155 | 65 | female | IV A |
| 156 | 65 | male | IV A |
| 157 | 64 | female | IVA |
| 158 | 68 | male | IVA |
| 159 | 72 | female | IV A |
| 160 | 60 | male | IV A |
| 161 | 59 | male | IV A |
| 162 | 45 | female | IV A |
| 163 | 32 | female | IVB |
| 164 | 63 | male | IVB |
| 165 | 52 | male | IVB |
| 166 | 72 | female | IVB |
| 167 | 55 | male | IVB |
| 168 | 55 | male | IVB |
| 169 | 64 | male | IVB |
| 170 | 60 | female | IVB |
| 171 | 63 | male | IVB |
| 172 | 57 | male | IVB |


| 142 | male | 54 |
| :---: | :---: | :---: |
| 143 | male | 59 |
| 144 | female | 67 |
| 145 | male | 65 |
| 146 | male | 54 |
| 147 | female | 59 |
| 148 | male | 35 |
| 149 | male | 57 |
| 150 | male | 58 |
| 151 | female | 64 |
| 152 | female | 56 |
| 153 | male | 62 |
| 154 | female | 61 |
| 155 | female | 66 |
| 156 | female | 79 |
| 157 | male | 56 |
| 158 | male | 65 |
| 159 | male | 59 |
| 160 | female | 58 |
| 161 | male | 62 |
| 162 | female | 55 |
| 163 | female | 27 |
| 164 | male | 65 |
| 165 | male | 52 |
| 166 | female | 69 |
| 167 | male | 59 |
| 168 | female | 63 |
| 169 | male | 83 |
| 170 | female | 56 |
| 171 | female | 59 |
| 172 | male | 57 |

B. Serum samples in study of miRNA biomarker confirmation collected from Cancer Center of Guangzhou Medical University (Guangzhou, China).
patients from Rectum Department but
patients with colorectal cancer

| number | age | gender | TNM |
| :--- | :--- | :--- | :--- |
| 1 | 42 | female | I |
| 2 | 63 | female | I |
| 3 | 55 | male | I |
| 4 | 43 | male | I |
| 5 | 51 | male | I |
| 6 | 72 | female | I |
| 7 | 30 | female | II |
| 8 | 26 | female | II |
| 9 | 58 | female | II A |
| 10 | 67 | female | II A |
| 11 | 35 | female | II A |

without colorectal cancer

| number | age | gender |
| :--- | :--- | :--- |
| 1 | 46 | female |
| 2 | 49 | female |
| 3 | 47 | male |
| 4 | 37 | male |
| 5 | 53 | female |
| 6 | 39 | male |
| 7 | 34 | female |
| 8 | 39 | female |
| 9 | 51 | female |
| 10 | 39 | female |
| 11 | 54 | female |


| 12 | 57 | male | II A |
| :--- | :--- | :--- | :--- |
| 13 | 52 | male | II A |
| 14 | 43 | female | II B |
| 15 | 61 | male | II B |
| 16 | 71 | female | II B |
| 17 | 67 | male | II B |
| 18 | 39 | female | II B |
| 19 | 44 | male | II B |
| 20 | 47 | male | II B |
| 21 | 38 | female | II C |
| 22 | 50 | male | IIIB |
| 23 | 60 | female | IIIB |
| 24 | 56 | male | IIIB |
| 25 | 51 | female | IIIB |
| 26 | 42 | male | IIIC |
| 27 | 45 | male | IIIC |
| 28 | 53 | male | IIIC |
| 29 | 69 | female | IIIC |
| 30 | 60 | male | IIIC |
| 31 | 61 | male | IIIC |
| 32 | 62 | male | IIIC |
| 33 | 57 | female | IV |
| 34 | 57 | male | II |
| 35 | 63 | male | IV |
| 36 | 56 | female | IV B |


| 12 | 54 | female |
| :--- | :--- | :--- |
| 13 | 41 | female |
| 14 | 44 | female |
| 15 | 53 | female |
| 16 | 37 | male |
| 17 | 38 | male |
| 18 | 35 | female |
| 19 | 33 | female |
| 20 | 36 | male |
| 21 | 36 | male |
| 22 | 34 | male |
| 23 | 44 | female |
| 24 | 44 | female |
| 25 | 44 | female |
| 26 | 45 | female |
| 27 | 46 | male |
| 28 | 44 | male |
| 29 | 45 | male |
| 30 | 41 | male |
| 31 | 48 | female |
| 32 | 46 | female |
| 33 | 49 | female |
| 34 | 34 | female |
| 35 | 57 | male |
| 36 | 50 | male |

C.Samples in test of plasma vs. serum collected from Shenzhen People's Hospital (Shenzhen, China). healthy

| number | gender | age |
| :--- | :--- | :--- |
| 1 | male | 46 |
| 2 | male | 42 |
| 3 | female | 40 |
| 4 | female | 43 |
| 5 | female | 28 |
| 6 | male | 46 |
| 7 | female | 53 |
| 8 | female | 46 |
| 9 | male | 57 |
| 10 | female | 52 |

