### Supplement 1. Characteristics of the included studies.

| #  | First author (Year), Country | Language | Acupoint | Needling Depth | Needling angle | Needling Target or Anatomical Structures |
|----|------------------------------|----------|----------|----------------|---------------|-----------------------------------------|
| 1  | Jie S (2015), China         | Chinese  | BL 18    | 0.8寸         | 90°           | muscle                                  |
| 2  | Jie S (2011), China         | Chinese  | BL 18    | 0.5~0.8寸     | 45°           | muscle                                  |
| 3  | Gao X (2014), China         | Chinese  | BL 18    | 0.5~0.8寸     | 45°           | Targeting Spinal bone (向脊椎)            |
| 4  | Gao X (2014), China         | Chinese  | BL 18    | -             | 90°           | muscle                                  |
| 5  | 高希言(2011), China         | Chinese  | BL 18    | 0.5~0.8寸     | 90°           | muscle                                  |
| 6  | Qu (1996), China            | Chinese  | BL 20    | 3寸           | -             | muscle                                  |
| 7  | Qi (2017), China            | Chinese  | BL 18    | 15~20mm, 10~15mm | 30~60°, 90°   | muscle                                  |
| 8  | Li (2018), China            | Chinese  | BL 18    | 0.8寸         | 90°           | muscle                                  |
| 9  | Li (1999), China            | Chinese  | BL 18    | 1寸           | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 10 | Li (2015), China            | Chinese  | BL 18    | 0.5~0.8寸     | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 11 | Li (2017), China            | Chinese  | BL 20    | -             | 45°           | muscle                                  |
| 12 | Li (1995), China            | Chinese  | BL 18    | -             | -             | BL 18: trapezius muscle, Middle accessory neurovascular bundle BL 18 ,BL 20 ,BL 22: latissimus dorsi, latissimus dorsi Canal nerves (axillary arteries and veins) |
| 13 | Li (2009), China            | Chinese  | BL 18    | 1寸           | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 14 | Li (2014), China            | Chinese  | BL 18    | 0.5~0.8寸     | -             | muscle                                  |
| 15 | Ma (2013), China            | Chinese  | BL 20    | 0.5~0.8寸     | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 16 | Ma (2006), China            | Chinese  | BL 18    | 1~1.5寸       | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 17 | Mo (2020), China            | Chinese  | BL 18    | -             | 45°           | muscle                                  |
| 18 | Wan (2019), China           | Chinese  | BL 18    | 0.5~0.8寸     | Oblique insertion (斜刺) | muscle                                  |
| No. | Author (Year), Country | Language | Acupuncture Points | Depth | Angle | Targeting Area |
|-----|------------------------|----------|--------------------|-------|-------|----------------|
| 19  | Mou (2011), China      | Chinese  | BL 18, BL 20       | 0.5~0.8寸 | 45°   | muscle       |
| 20  | Wu (2004), China       | Chinese  | BL 18              | -     | Oblique insertion (斜刺) | muscle |
| 21  | Fang (2019), China     | Chinese  | BL 18, BL 20, BL 22 | 1.2~1.3寸 | Oblique insertion (斜刺) | muscle |
| 22  | Fu (2013), China       | Chinese  | BL 18, BL 20       | 0.5~0.8寸, 0.5~1寸 | Oblique insertion (斜刺) | muscle |
| 23  | Fu (2020), China       | Chinese  | BL 18              | 0.2~0.5cm | -     | Subcutaneous (局部出血) |
| 24  | Ding (2011), China     | Chinese  | WBS                | 25-40mm | 90°   | muscle       |
| 25  | Zheng (2014), China    | Chinese  | BL 18, BL 20, BL 22 | 1.5寸 | -     | muscle       |
| 26  | Zhao (1995), China     | Chinese  | BL 22              | 1-2寸 | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 27  | Zhao (2017), China     | Chinese  | BL 18, BL 20       | 1-2寸, 75° | Targeting Spinal bone (向脊椎) |
| 28  | Zhao (2010), China     | Chinese  | BL 18, BL 20       | 1寸 (Coronary artery disease), 1.5-2寸 (Diabetes), 0.5-0.8寸 (Hypertension), 0.5-0.8寸 (Constipation) | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 29  | Zuo (2017), China      | Chinese  | BL 18, BL 20       | 1.5-2.5寸 | 75°   | muscle       |
| 30  | Zhou (2017), China     | Chinese  | BL 18, BL 20       | 1寸 | 90°   | muscle       |
| 31  | Zhu (2020), China      | Chinese  | BL 20              | 0.5-0.8寸 | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 32  | Zhou (2009), China     | Chinese  | BL 18, BL 20       | 0.8-1cm | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
|   | Author (Year), Country | Language | Points | Distance | Needle Direction | Target tissue |
|---|------------------------|----------|--------|----------|------------------|--------------|
| 33 | Zhu (2017), China      | Chinese  | BL19 BL20 BL22 | 0.8-1寸 | Oblique insertion (斜刺) | muscle       |
| 34 | Zhou (2014), China     | Chinese  | BL18 BL20 BL22 | 0.8寸   | 45°              | Targeting Spinal bone (向脊椎) |
| 35 | ZENG (2019), China     | Chinese  | BL18 BL20       | 1.5-2.5寸 | -                | Targeting Spinal bone (向脊椎) |
| 36 | Chen (2018), China     | Chinese  | BL18 BL20       | 0.5-1寸   | Oblique insertion (斜刺) | Targeting Spinal bone (向脊椎) |
| 37 | Peng (2014), China     | Chinese  | BL20            | 0.8-1寸   | 90°              | muscle       |
| 38 | Peng (2005), China     | Chinese  | WBS             | 15mm~30mm | Oblique insertion (斜刺) | Muscle, Targeting Spinal bone (向脊椎) |
| 39 | Feng (2018), China     | Chinese  | WBS             | Obese: 0.5寸 Thin: 1寸 | 90°     | Muscle       |
| 40 | Feng (2020), China     | Chinese  | WBS             | 15~20mm   | 45°              | Muscle       |
| 41 | Bi (2014), China       | Chinese  | BL18            | Oblique insertion (斜刺): 1寸 Vertical insertion: 0.5寸 | 45°     | Muscle       |
| 42 | He (1984), China       | Chinese  | BL18 BL20       | 1~1.5寸   | -                | muscle       |
| 43 | He (2003), China       | Chinese  | BL18 BL20 BL22  | 1.5寸   | 60°              | muscle       |
| 44 | Xia (2006), China      | Chinese  | BL18 BL20 BL22  | 0.5~0.8寸 | 45°              | muscle       |
| 45 | Huang F (2008), China  | Chinese  | BL18 BL20       | 20~25mm  | Oblique insertion (斜刺) | Muscle, Targeting Spinal bone (向脊椎) |
| 46 | Chen (2018), China | English | WBS | 15~30mm | Oblique insertion | Muscle, Targeting Spinal bone (向脊椎) |
|----|-------------------|---------|-----|---------|------------------|-------------------------------|
| 47 | Qiu (2011), China | Chinese | WBS | 10~15mm | 45° | Muscle, Targeting Spinal bone (向脊椎) |
| 48 | Chen (2008), China | Chinese | BS | 0.5~0.8寸 | 45° or 90° | Muscle, Targeting Spinal bone (向脊椎) |
| 49 | Chen (2014), China | Chinese | BL18 BL20 | 15~20mm | Oblique insertion | Muscle, Targeting Spinal bone (向脊椎) |
| 50 | Xiao (2010), China | Chinese | BL20 BL22 | 1.0~1.2寸 | 90° | Muscle |
| 51 | Cong (2014), China | Chinese | BL18 | - | 90° or Oblique insertion | Muscle |
| 52 | She (2009), China | Chinese | BS | 20~40mm | - | Targeting Spinal bone (向脊椎) |
| 53 | She (2009), China | Chinese | BL22 | 45~60mm | Oblique insertion | Targeting Spinal bone (向脊椎) |
| 54 | Chang (2021), China | Chinese | BL18 BL20 | - | 45 | Muscle |
| 55 | Chang (2019), China | Chinese | BS | 0.5~0.8寸 | Oblique insertion | muscle |
| 56 | Xu (2013), China | Chinese | BL18 BL20 | 0.5~1寸 | 90 | Targeting Spinal bone (向脊椎) |
| 57 | Xu (2006), China | Chinese | BL18 BL20 | 1寸 | Oblique insertion | Targeting Spinal bone (向脊椎) |
| 58 | SHI (2017), China | Chinese | BL18 BL20 | 9~16mm | 90 | muscle |
| 59 | Nie (2001), China | Chinese | BS | - | 30 | muscle |
| 60 | Shao (2016), China | Chinese | BL18 BL20 | 13~20mm | 90 | Targeting Spinal bone (向脊椎) |
| 61 | Xiao (2015), China | Chinese | BL20 | 25mm | 90 | muscle |
| 62 | Su (2019), China | Chinese | BL20 | 0.5~0.8寸 | 45 | Targeting Spinal bone (向脊椎) |
| 63 | Song (2019), China | Chinese | BL18 BL20 | 0.5~0.8 Inch | 45 | muscle |
| 64 | Yue (2008), China | Chinese | BL18 BL20 | - | - | muscle |
| 65 | Yang (2016), China | Chinese | JP, BS | 1寸 | 45 | Targeting Spinal bone (向脊椎) |
| No. | Author (Year), Country | Language | Points | Location | Description |
|-----|------------------------|----------|--------|----------|-------------|
| 66  | Yang (2014), China     | Chinese  | JP, BS | 1.5寸   | 90          | muscle      |
| 67  | Yang (2012), China     | Chinese  | BL18, BL20, BL22 | - | 90          | muscle      |
| 68  | Wu (2020), China       | Chinese  | BL20   | 0.5~0.8寸 | 90          | muscle      |
| 69  | Wu (2009), China       | Chinese  | JP, BS | -        | 30~45       | Targeting Spinal bone (向脊椎) |
| 70  | Wu (2015), China       | Chinese  | BL18, BL20 | - | 30          | muscle      |
| 71  | Wu (2019), China       | Chinese  | BL20   | 10mm     | 45          | muscle      |
| 72  | Wang (2012), China     | Chinese  | BS     | 0.5-0.8 Inch | 45         | Targeting Spinal bone (向脊椎) |
| 73  | Wang (2019), China     | Chinese  | BL18   | -        | -           | muscle      |
| 74  | Cui (2014), China      | Chinese  | BS     | -        | -           | muscle      |
| 75  | Wang (2010), China     | Chinese  | BL18   | 1 Inch   | -           | muscle      |
| 76  | Wang (2020), China     | Chinese  | BS     | 0.5-1 Inch | -           | muscle      |
| 77  | Wang (2014), China     | Chinese  | BL18, BL20 | 0.5-0.8 | -           | muscle      |
| 78  | Wang (2009), China     | Chinese  | BL18, BL20 | 1寸   | -           | muscle      |
| 79  | Wang (2019), China     | Chinese  | BL18, BL20 | 20-25mm | 45          | muscle      |
| 80  | Wei (2019), China      | Chinese  | BL18, BL20, BL22 | BL18, BL20 0.5~0.8寸, BL22: 0.5~1寸 | BL18, 20：90, BL22 : 90 | muscle      |
| 81  | Yin (2013), China      | Chinese  | BL18, BL20 | 0.8~1分 | 90          | muscle      |
| 82  | Ren (2011), China      | Chinese  | BS     | 0.5-0.8 Inch | -           | muscle      |
| 83  | Zhang (2012), China    | Chinese  | BL18   | 0.5-0.8 Inch | -           | muscle      |
| 84  | Jiang (2021), China    | Chinese  | BL18, BL20 | 40~55mm | 90          | muscle      |
| 85  | Zhang, (2019), China   | Chinese  | BL18, BL20 | 13mm   | -           | muscle      |
| 86  | Zhang (2009), China    | Chinese  | BS     | -        | -           | muscle      |
| No. | Authors          | Country | Blads | Needle Length | Targeting Area                                      |
|-----|------------------|---------|-------|---------------|-----------------------------------------------------|
| 87  | Zhang (2007)     | China   | BL18  | 25mm          | Muscle                                              |
| 88  | Zhang (2010)     | China   | BL18, BL20 | -     | Muscle                                              |
| 89  | Zhang (2011)     | China   | BL20  | 15mm, 25~30mm | Muscle                                              |
| 90  | Zhang (2010)     | China   | BL18, BL20 | 0.8~1.0cm | Targeting Spinal bone (向脊椎)                       |
| 91  | Zhang (2011)     | China   | BL18, BL20 | 0.8~1.0cm | Targeting Spinal bone (向脊椎)                       |
| 92  | Jiang (2014)     | China   | BL18, BL20 | 15mm(BL18), 20mm(BL20) | Muscle                                              |
| 93  | Zhang (2018)     | China   | BL18, BL20 | 1.5~2.0 Inch | Targeting Spinal bone (向脊椎)                       |
| 94  | Zhang (2009)     | China   | BL18, BL20 | 1~2 Inch  | Muscle                                              |
| 95  | Tian (1994)      | China   | BS    | -             | Muscle                                              |
| 96  | Qian (1991)      | China   | BL18  | 0.5寸         | Muscle                                              |
| 97  | Gong (2019)      | China   | BL18  | Intradermal needling | Muscle                                              |
| 98  | Takayama, S (2011) | Japan | BL18  | 20mm          | Muscle                                              |
| 99  | Tang (2011)      | China   | BL18, BL20 | 0.5~1寸  | Muscle                                              |
| 100 | DAI (2020)       | China   | BL18, BL20 | 25~30mm  | Targeting Spinal bone (向脊椎)                       |
| 101 | Dong (2011)      | China   | BL18, BL20 | -        | musculature lesion, side of the tendon             |
| 102 | Lan (2012)       | China   | BL18, BL20 | 1寸       | Muscle                                              |
| 103 | LU (2015)        | China   | BL18, BL20, BL22 | 0.5~0.8寸 | Oblique insertion (斜刺) or 90° muscle             |
| Page | Author (Year), Country | Language | Points of Insertion | Insertion Orientation | Notes |
|------|------------------------|----------|---------------------|-----------------------|-------|
| 104  | Liu (2017), China      | Chinese  | BL 18 BL 20         | 0.5~0.8 寸            | Oblique insertion (斜刺) parallel to the spinal bone |
| 105  | Liu (2015), China      | Chinese  | BL 18 BL 20 BL 22   | 1.5~2.5cm             | 45° Targeting Spinal bone (向脊椎) |
| 106  | Liu (2013), China      | Chinese  | BL 18 BL 20 BL 22   | 0.5~1 寸              | Oblique insertion (斜刺) muscle |
| 107  | Liu (2009), China      | Chinese  | BL 18 BL 20 BL 22   | 0.5~0.8 寸            | Oblique insertion (斜刺) muscle |
| 108  | Liu (2020), China      | Chinese  | BL 20               | 25mm                  | 90° muscle |
| 109  | Liu (2013), China      | Chinese  | BL 18 BL 20         | 20mm                  | - muscle |
| 110  | Liu (2007), China      | Chinese  | BL 18 BL 20 BL 22   | 0.5~1 寸              | 45° Subcutaneous (皮下) |
| 111  | Liu (2021), China      | Chinese  | BL 18               | 12mm                  | 30° Targeting Spinal bone (向脊椎) |
| 112  | Li (2014), China       | Chinese  | BL 18 BL 20         | 20~25mm               | 45° Targeting Spinal bone (向脊椎) |
| 113  | Li (2009), China       | Chinese  | BL 18 BL 20         | 0.8~1.2 寸            | 90° muscle |
| 114  | Li (2011), China       | Chinese  | BL 18 BL 20         | 0.8~1.2 寸            | 90° muscle |
| 115  | Li (2011), China       | Chinese  | BL 18               | Cutaneous branches of posterior ramus of 9th, 10th thoracic nerve and related artery and vein’s soft tissue |